RCRA SITE SAMPLING REPORT

FOR

GENERAL ELECTRIC COMPANY –
SWITCHGEAR OPERATIONS
(EPA ID No. IAD005272703)
West Burlington, Iowa

IN SUPPORT OF
THE U.S. ENVIRONMENTAL PROTECTION AGENCY REGION 7

UNDER
RCRA ENFORCEMENT, PERMITTING, AND ASSISTANCE
(REPA4) CONTRACT
ZONE 3, REGION 7

Task Order R7031

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1. INTRODUCTION

Under the U.S. Environmental Protection Agency (EPA) RCRA Enforcement, Permitting, and Assistance (REPA4) Contract, Booz Allen Hamilton (Booz Allen) was requested under Task Order (TO) R0731 to support the collection and analysis of environmental samples of various media at 14 sites located in the State of Iowa. The 14 sites were selected by EPA due to known or suspected soil and/or groundwater contamination at each site. Included in the list of 14 sites is the General Electric Company – Switchgear Operations (GE) facility located in West Burlington, Iowa.

Under Task 1 of TO R0731, Booz Allen developed a general Quality Assurance Project Plan (QAPP) governing the acquisition, management, and use of all sampling data. The Final TO R0731 QAPP (REPA4-1731-001v1) was approved by EPA on July 19, 2010. Booz Allen also developed a Sampling and Analysis Plan (SAP) for each of the 14 sites. The site-specific SAPs detailed the sampling locations and methods to be used at each site. The GE SAP (REPA4-1731-010v1) was approved by EPA on August 20, 2010.

Soil and groundwater samples were collected at the GE site on December 8, 2010, per the QAPP and SAP. All samples were shipped, via Federal Express, to the EPA Region 7 Laboratory in Kansas City, Kansas for analysis. Analytical results were received on February 8, 2011. This RCRA Site Sampling Report documents the sampling performed at GE and presents the analytical results of the sampling. This report also provides a screening-level comparison of the analytical results to the May 2010 EPA Regional Screening Levels (RSLs).

2. SITE BACKGROUND

This section presents background information for the GE site, including a summary of past investigations and the sampling rationale. Further discussion is provided in the site-specific SAP.

2.1 SITE LOCATION

GE is located at 510 East Agency Road, West Burlington, Iowa, on an approximately 38-acre site. It is a manufacturer of medium voltage switchgear and switchboards. A general area map showing the location of the GE facility is included in Appendix A as Map 1.

2.2 OPERATIONAL HISTORY

According to a February 7, 1992 Final RCRA Facility Assessment (RFA) report, GE began operations at its current location in 1961 as an appliance control center. Switchgear operations began in 1962 and are ongoing. Manufacturing operations include metal machining, forming, painting, and assembly into switchgear cabinets. Electroplating of metal components is also performed at the site. An onsite wastewater treatment facility treats electroplating wastewater (e.g., chromium and cyanide treatment, metals flocculation, clarification) prior to discharge. A site map from the 1992 RFA report, which details the various departments within the GE facility, is included in Appendix D as Map 2.

2.3 ENVIRONMENTAL SETTING

According to the 1992 RFA report, the GE site is located in a relatively flat area within the city limits of West Burlington, IA. The Mississippi River is located approximately four miles east of the site and the Skunk River is located approximately six miles south of the facility. Surface runoff from the site tends to flow northward toward unnamed tributaries of Honey Creek. Honey Creek feeds Flint Creek, which empties into the Mississippi River.

The geology beneath the site consists of a relatively thick sequence of glacial till, consisting of clay with some silt and traces of sand. The average thickness of the till is between 20 and 25 feet. Bedrock underlying the site consists of thin layers of shale overlying siltstone, dolomite, and limestone. During a 1956 geotechnical investigation, groundwater was reached in borings at an average depth of approximately 10 feet below ground surface (bgs). Groundwater flow was reported to be toward the southeast.

2.4 ENVIRONMENTAL INVESTIGATION HISTORY

According to the 1992 RFA report, effluent from GE's wastewater treatment facility discharged through a storm sewer into Honey Creek prior to September 1982. During a March 25, 1980 inspection, an Iowa Department of Environmental Quality (IDEQ) inspector collected a sample of GE's effluent and sediment samples from Honey Creek. Analysis of the effluent sample showed chromium, copper, silver, zinc, and cyanide at concentrations in excess of GE's discharge permit. Sediment samples showed elevated concentrations of these constituents of concern (COCs) as well.

Two tanks that were used in GE's wastewater treatment facility were buried outside the west wall of the facility. The bottoms of these tanks were reportedly approximately nine feet bgs. One of the tanks was a 2,700-gallon flow-through process that that held caustic material used in the treatment process. The second tank was a 4,700-gallon flow-through tank that was used as a holding tank for wastewater after cyanide treatment and chrome reduction. Water from this holding tank was pumped into the clarifiers prior to discharge.

GE removed the underground wastewater treatment facility tanks in August 1991. Following tank removal, soil samples were collected (from 2.5 feet bgs and 9 feet bgs) and analyzed for metals and volatile organic compounds (VOC). Results included detections of zinc [280 parts per million (ppm)], chromium (78 ppm), lead (42 ppm), barium (75 ppm), 1,1,1-trichloroethane (0.0027 ppm), methyl ethyl ketone (0.14 ppm), and xylene (0.06 ppm). GE concluded that these sample results did not indicate significant contamination, and backfilled the excavation with soil removed during the tank removal.

As part of an RFA, a Visual Site Inspection (VSI) was conducted by EPA in August 1990. The findings of the Preliminary Review (PR) and VSI were presented in a draft RFA report dated October 10, 1990. After completing the draft RFA report, EPA determined that a Sampling Visit (SV) was necessary to meet the objectives of the RFA. An SV was conducted by EPA and EPA contractors in October 1991. During the SV, soil, sediment, surface water, and wipe samples were collected from the GE site.

One wipe sample was collected from the concrete pad beneath the storage racks outside of the east wall of the facility (identified as SWMU 8 in the 1992 RFA report). This storage rack was used to store 55-gallon containers of hazardous wastes (solvents, cyanide wastes, paint-related wastes, and plating wastes) until January 1989. The wipe sample was collected to determine whether residual contamination remained on the concrete. Analysis of this wipe sample showed concentrations of silver [0.0567 micrograms per cubic centimeter ($\mu g/cm^2$)], cadmium (0.0091 $\mu g/cm^2$), chromium (0.0940 $\mu g/cm^2$), and lead (0.351 $\mu g/cm^2$).

Sediment and surface water samples were collected to determine if hazardous constituents were still present at the storm sewer outfall and Honey Creek. These samples were analyzed for VOCs metals, and cyanide. No VOCs were detected in surface water or sediment samples. Metals and cyanide in sediment included chromium [9.06 milligrams per kilogram (mg/kg) at the storm sewer outlet and 26.0 mg/kg 100 feet downstream]; copper (49.2 mg/kg at the storm sewer outlet and 33.4 mg/kg 100 feet downstream); zinc (102 mg/kg at the storm sewer outlet and 83.5 mg/kg 100 feet downstream); silver (1.36 mg/kg at the storm sewer outlet and 6.66 mg/kg 100 feet downstream); and cyanide (0.37 mg/kg at the storm sewer outlet and 3.1 mg/kg 100 feet downstream). The surface water sample collected from the outlet contained barium at 0.0248 mg/kg, copper at 0.0206 mg/kg, and zinc at 0.0427 mg/kg.

Soil samples were collected during the 1991 SV to confirm GE's findings that significant contamination was not present at the location of the wastewater treatment facility's former underground wastewater holding tanks. Five soil borings were advanced in this area, and two

samples were collected from each boring (at approximately four feet bgs and at approximately nine feet bgs). These samples were analyzed for VOCs, metals, and cyanide. VOCs were not significantly detected. The maximum concentrations of metals and cyanide were: silver at 16.4 mg/kg, arsenic at 11 mg/kg, barium at 212 mg/kg, chromium at 46.8 mg/kg, copper at 39.4 mg/kg, nickel at 18.1 mg/kg, lead at 29.3 mg/kg, zinc at 171 mg/kg, and cyanide at 0.62 mg/kg. Cadmium and selenium were not detected.

Following the SV, the final RFA report was submitted on February 7, 1992. Eight solid waste management units (SWMUs) and two areas of concern (AOCs) were identified in this report. Based on past history and the findings of the SV, all SWMUs and AOCs were identified in the RFA report as having a low likelihood of release except for the wastewater treatment facility's former underground wastewater holding tanks (SWMU 4). The 1992 RFA identified a moderate likelihood of release to surface water and groundwater in this area, with evidence of release to soils observed. A map showing the locations of all SWMUs and AOCs identified in the 1992 RFA report is included as Map 2 in Appendix A.

In December 1992, EPA conducted a RCRA Compliance Evaluation Inspection (CEI) at GE. During the CEI, hazardous wastes were found to have been stored for longer than 90 days without a RCRA permit in the Hazardous Materials Storage Building (identified as SWMU 3 in the 1992 RFA report). A subsequent Consent Agreement and Consent Order, effective August 6, 1994, required the RCRA closure of the Hazardous Materials Storage Building as well as the storage rack formerly used as a hazardous waste container storage area (SWMU 8 in the 1992 RFA report).

GE submitted a Closure Plan in September 1994 and performed RCRA closure at these areas (subdivided into four hazardous waste storage areas) in 1995. Closure activities consisted of cleaning and washing the surfaces of the hazardous waste storage areas. Initial and final rinse water samples were collected. According to the closure certification report, rinse water analyses showed that no residual contamination existed above the closure standards presented in the Closure Plan. A Closure Certification for Four Hazardous Waste Storage Areas was submitted in June 1995. A map of the closed hazardous waste storage areas in included as Map 3 in Appendix A.

During the file review, it was noted that no environmental samples (e.g., soil, groundwater) were collected and analyzed during the 1995 closure activities. It was also noted that the Hazardous Materials Storage Building has interior sumps which drain toward underground storage tanks south of the building. A diagram of the Hazardous Materials Storage Building, showing the sumps and underground storage tanks, is included as Map 4 in Appendix A.

Aside from routine CEIs, the EPA files contain no other reports of environmental investigations at GE since the 1995 closure activities.

2.5 SAMPLING RATIONALE

During the 1991 SV, metals and cyanide were identified in the soil near the former location of the wastewater treatment facility's underground storage tanks. The 1992 RFA also described the Hazardous Materials Storage Building as being used for hazardous waste storage, and included a diagram showing sumps within the building that drain toward underground storage tanks. During the 1995 RCRA closure of the Hazardous Materials Storage Building, no soil or groundwater samples in the vicinity of the underground storage tanks were collected.

The goal of the RCRA Site Sampling at GE is to determine if contamination is present at the site, specifically at these two areas. Therefore, the RCRA Site Sampling at GE focused on the former location of the wastewater facility's underground storage tanks (four sampling locations) and the sump/storage tank area south of the Hazardous Materials Storage Building (two sampling locations). Soil and groundwater sampling was conducted at these areas for constituents of concern (COCs) identified in the EPA file materials and/or the 1991 SV. These COCs included volatile organic compounds (VOCs), total RCRA metals, and total cyanide.

3. SITE SAMPLING

This section describes the site sampling activities performed at GE. Unless otherwise discussed the following Section, all activities were performed as described in the EPA-approved QAPP and SAP.

3.1 PRE-SAMPLING ACTIVITIES

3.1.1 Facility Access

Under Task 3 of TO R0731, Booz Allen contacted GE to obtain permission for site access and sampling. On November 17, 2010, Booz Allen discussed the planned sampling activities with Ms. Jill Gassman, Environmental, Safety, and Health Manager. Ms. Gassman explained that she would have to relay the request to corporate personnel for a decision.

On November 24, Booz Allen participated in a teleconference call with Ms. Gassman, Mr. Joel Robinson (corporate Environmental Manager), and Mr. Joe Passman. Mr. Robinson relayed concerns with the scope and timing of the planned sampling. Booz Allen agreed to pass his concerns to the EPA Task Order Contracting Officer's Representative (TOCOR), who would call him for further discussion.. A copy of a Telephone Conversation Record documenting these conversations is included in Appendix B.

On December 2, 2010, the EPA TOCOR informed Booz Allen that discussions with GE corporate personnel were still occurring. However, Booz Allen was advised to prepare for sampling on December 8, 2010 as planned. On December 7, 2010, Booz Allen called Ms. Gassman to verify that access for sampling had been granted. Ms. Gassman granted access for sampling on December 8, 2010.

Prior to beginning the sampling, an entry briefing was held. Ms. Gassman, Mr. Harold Smith (Maintenance Leader), Mr. Dusty Palmer (Environmental, Health, and Safety Technician), and the Booz Allen/Terranext/PSA Environmental field crew were in attendance. Booz Allen presented Ms. Gassman with a copy of the SAP and discussed the planned sampling locations and sampling rationale. Ms. Gassman discussed site safety and emergency procedures to be followed, and granted access for the planned activities.

Under Task 4 of TO R0731, Booz Allen contacted the Iowa Department of Natural Resources (IDNR), Iowa Geological and Water Survey section to request identification of all groundwater wells within a one-mile radius of the site. Location data and maps were forwarded to the Iowa Geological and Water Survey section on August 7, 2010. Search results received from the Iowa Geological and Water Survey are included in Appendix C. These results are summarized and discussed in Section 5.3.2 of this report.

Booz Allen contacted Iowa One Call on December 3, 2010 to request public utility marking at the GE site. Public utilities around and to the GE site were marked with utility flags prior to the sampling date.

3.2 SAMPLING DESIGN

3.2.1 Sample Locations

As specified in the SAP, two sampling locations were selected near the Hazardous Material Storage Building. Both of these locations were selected for subsurface soil sampling (at three depth intervals). Additionally, groundwater sampling was sampled at one location. Four sampling locations were selected near the former wastewater treatment facility's underground storage tanks. Subsurface soil (at three depth intervals) was selected at three of these locations. Groundwater sampling was selected for two of these locations.

Following the entry briefing with GE personnel, Messrs. Smith and Palmer walked the site with the field sampling crew to mark the six sampling locations. During this walk-through, it was noted that GE still uses the Hazardous Material Storage Building. However, Mr. Palmer stated that hazardous materials or wastes are not stored in this building. Mr. Smith opened the building, and Booz Allen observed that the building is currently used for miscellaneous supplies and equipment storage. Booz Allen also observed that the sumps within the building have been closed by filling with concrete. Ms. Gassman later confirmed that hazardous materials or wastes have not been stored in this building for several years. None of the GE representatives were aware of any underground tanks associated with the former building sumps or if any tanks have been removed.

During the walk-through, it was also noted that GE has expanded its facility since the 1992 RFA. Specifically, GE's Vacuum Interrupter Production Operation (VIPO) building has been constructed over much of the area where the wastewater treatment facility's underground storage tanks were formerly located. An copy of an online aerial photograph showing this building extension is included as Map 5 in Attachment A.

Ms. Gassman and Messrs. Smith and Palmer expressed concerns that numerous, private, underground utilities were potentially present near the VIPO building. During the walk-through, several manholes and other evidence of underground utilities were observed in this area. Messrs. Smith and Palmer located utility maps and provided copies to the field crew. These maps confirmed that underground storm sewer, sanitary sewer, and fire suppression system (sprinkler and fire hydrant supply lines) all ran through the area originally selected for sampling. Booz Allen determined that the risk of utility encounter during borehole advancement was too great at the previously-selected Locations 001 through 004. These sampling locations were moved to adjacent areas to avoid the known underground utilities.

The sampling map included in the SAP was revised to include the approximate location of the VIPO building and the changes to Locations 001 thorough 004. This revised sampling map is included as Map 6 in Appendix A.

Descriptions of the six sampling locations, as well as the rationale for their selection, are summarized in Table 1 below. Table 1 also includes global positioning system (GPS) coordinates

for each sample location. The GPS coordinates were located using a Trimble GeoExplorer GeoXT hand-held GPS unit. According to the manufacturer's specification sheets, this GPS unit provides location data with sub-meter accuracy. The data files were post-processed by the unit's rental company (Field Environmental Instruments, Inc.), and corrected coordinates were e-mailed to Booz Allen. The post-processed GPS data (with reported horizontal precision of 3.9 to 4.8 feet) is included in Appendix D.

Table 1. Sample Locations, GE

Location	Location Description*	GPS	Selection Rationale
001 West Side	26.5 feet west of the west wall of the VIPO building; 15 feet north of the south wall of the VIPO building (moved from original SAP location due to underground utility concerns)	Latitude: +40.81637126 Longitude: -91.14982936	Former wastewater facility's underground storage tank location. West of the VIPO building, presumed upgradient side.
002 West Side	26.5 feet west of the west wall of the VIPO building; 2 feet north of the south wall of the VIPO building (moved from original SAP location due to underground utility concerns)	Latitude: +40.81633407 Longitude: -91.14983055	Former wastewater facility's underground storage tank location. West of the VIPO building.
003 West Side	26.5 feet west of the west wall of the VIPO building; 11 feet south of the south wall of the VIPO building (moved from original SAP location due to underground utility concerns)	Latitude: +40.8162925 Longitude: -91.14982668	Former wastewater facility's underground storage tank location. West of the VIPO building, presumed downgradient side.
004 West Side	26 feet from the west wall of the main facility; 71 feet south of the loading docks (moved from original SAP location due to underground utility concerns)	GPS data could not be obtained due to interference from the building and overhead utilities	Presumed downgradient (southeast) of the former wastewater facility's underground storage tank location.
005 East Side	20 feet south of the Hazardous Material Storage Building, 12 feet east of the west wall	Latitude: +40.8160094 Longitude: -91.14760784	Downgradient (south) of the Hazardous Materials Storage Building, near the underground storage tank location shown in building diagrams
006 East Side	20 feet south of the Hazardous Material Storage Building, 12 feet west of the east wall.	Latitude: +40.81601051 Longitude: -91.14753934	Downgradient (south) of the Hazardous Materials Storage Building, near the underground storage tank location shown in building diagrams

* = distances presented in the Location Description were measured on December 8, 2010.

3.2.2 Sample Intervals and Matrices

The sampling design for this site included the collection of 19 environmental samples at the three locations described above. Eight (8) quality control (QC) samples were also collected, as dictated by the EPA-approved QAPP and SAP. These 27 samples included the following:

- Sixteen (16) subsurface soil samples from direct-push boreholes advanced at the site
- Two (2) duplicate, subsurface soil samples (QC)

- One (1) matrix spike/matrix spike duplicate (MS/MSD) subsurface soil sample (QC)
- One (1) equipment blank (EB) sample for soil sampling equipment (QC)
- Three (3) groundwater samples from direct-push boreholes advanced at the site
- One (1) duplicate groundwater sample (QC)
- One (1) MS/MSD groundwater sample (QC)
- One (1) EB sample for groundwater sampling equipment (QC)
- One (1) trip blank for VOCs (QC)

All samples were collected for VOC (SW-846 Method 8260), total RCRA metals (SW-846 Method 6010), and total cyanide (SW-846 Method 9010). Table 2 presents an accounting of the normal samples (i.e., non-QC samples) and the QC samples collected at GE.

Table 2. Sample Locations, Matrices, and Analyses

Location	Sample ID*	EPA Lab ID	Type	Media	Depth**	Analyses
001	GE-01-SL-001	5013-1	Normal	Soil	Subsurface (2-4 feet bgs)	VOCs, metals, cyanide
	GE-02-SL-001	5013-2	Normal	Soil	Subsurface (6-8 feet bgs)	VOCs, metals, cyanide
			QC; MS/MSD	Soil	Subsurface (6-8 feet bgs)	VOCs, metals, cyanide
	GE-03-SL-001	5013-3	Normal	Soil	Subsurface (9-11 feet bgs)	VOCs, metals, cyanide
002	GE-01-SL-002	5013-4	Normal	Soil	Subsurface (2-4 feet bgs)	VOCs, metals, cyanide
	GE-02-SL-002	5013-5	Normal	Soil	Subsurface (6-8 feet bgs)	VOCs, metals, cyanide
	GE-03-SL-002	5013-6	Normal	Soil	Subsurface (9-11 feet bgs)	VOCs, metals, cyanide
003	GE-01-SL-003	5013-7	Normal	Soil	Subsurface (2-4 feet bgs)	VOCs, metals, cyanide
	GE-02-SL-003	5013-8	Normal	Soil	Subsurface (6-8 feet bgs)	VOCs, metals, cyanide
	GE-03-SL-003	5013-9	Normal	Soil	Subsurface (9-12 feet bgs)	VOCs, metals, cyanide
	GE-04-SL-003	5013-9FD	QC; Duplicate	Soil	Subsurface (9-12 feet bgs)	VOCs, metals, cyanide
	GE-01-GW-003	5013-101	Normal	Groundwater	Groundwater level ~18 feet bgs at time of sampling	VOCs, metals, cyanide
	GE-02-GW-003	5013-101FD	QC; Duplicate	Groundwater	Groundwater level ~18 feet bgs at time of sampling	VOCs, metals, cyanide
004	GE-01-GW-004	5013-103	Normal	Groundwater	Groundwater level ~14 feet bgs at time of sampling	VOCs, metals, cyanide

Location	Sample ID*	EPA Lab ID	Type	Media	Depth**	Analyses
			QC; MS/MSD	Groundwater	Groundwater level ~14 feet bgs at time of sampling	VOCs, metals, cyanide
005	GE-01-SL-005	5013-11	Normal	Soil	Subsurface (1-3 feet bgs)	VOCs, metals, cyanide
	GE-02-SL-005	5013-12	Normal	Soil	Subsurface (4-6 feet bgs)	VOCs, metals, cyanide
	GE-03-SL-005	5013-13	Normal	Soil	Subsurface (6-8 feet bgs)	VOCs, metals, cyanide
006	GE-01-SL-006	5013-14	Normal	Soil	Subsurface (1-3 feet bgs)	VOCs, metals, cyanide
	GE-02-SL-006	5013-15	Normal	Soil	Subsurface (3-6 feet bgs)	VOCs, metals, cyanide
	GE-03-SL-006	5013-15FD	QC; Duplicate	Soil	Subsurface (3-6 feet bgs)	VOCs, metals, cyanide
	GE-04-SL-006	5013-17	Normal	Soil	Subsurface (6-8 feet bgs)	VOCs, metals, cyanide
	GE-05-SL-006	5013-18	Normal	Soil	Subsurface (9-11 feet bgs)	VOCs, metals, cyanide
	GE-01-GW-006	5013-104	Normal	Groundwater	Groundwater level ~13.2 feet bgs at time of sampling	VOCs, metals, cyanide
N/A	GE-01-EB-001	5013-105	QC; Soil EB	Aqueous	N/A	VOCs, metals, cyanide
N/A	GE-02-EB-001	5013-106	QC; GW EB	Aqueous	N/A	VOCs, metals, cyanide
N/A	GE-01-TB-001	5013-108FB	QC; Trip Blank	Aqueous	N/A	VOCs

* = Sample ID GE-01-SL-001 corresponds to GE, first sample, soil, collected at location 001
** = bgs: below ground surface

3.3 SAMPLING METHODS

Booz Allen, Terranext, and PSA Environmental personnel performed the surface and subsurface sampling at GE. Unless otherwise discussed in this section and/or Section 3.5, all sampling was performed as described in the EPA-approved QAPP and SAP. Sampling observations and methods were documented in field logbooks and forms, as well as through photographs. Copies of the field logbooks and forms are included in Appendix E, and the photographic log is included in Appendix F.

3.3.1 Surface Soil Sampling

The two areas of investigation at GE (former wastewater treatment facility's underground storage tanks and sumps/underground tanks associated with the Hazardous Materials Storage Building) involve potential subsurface soil and groundwater contamination. As such, surface soil sampling was not performed at GE.

3.3.2 Subsurface Soil Sampling

Surface soil samples at locations 001, 002, 003, 005, and 006 were collected using a Geoprobe 6620 unit equipped with a Macro-Core Soil Sampler and disposable soil core sleeves. At each location, the Geoprobe sampler was advanced through the desired sampling interval and withdrawn. An ESS Lock N' Load disposable syringe was used to collect approximately five-gram soil aliquots for VOC analysis immediately after sampler withdrawal. The VOC soil aliquots were immediately placed into the appropriate sample containers [two, 40-milliliter (mL), pre-weighed vials containing sodium bisulfate preservative]. Two, unpreserved, 40-mL vials were also immediately filled for percent moisture measurement and/or additional VOC analyses. After placement in the sample containers, the VOC samples were labeled, taped, containerized in empty cubitainers, and transferred to a sample cooler with ice. The sample container types and preservatives used are listed on the Analytical Services Request (ASR) form, which was provided by the EPA Region 7 Laboratory. A copy of the ASR form is included in Appendix G.

After the collection of VOC samples, the remaining soil in the sampling interval was placed in a stainless steel bowl. Grass, roots, gravel, and debris were removed from the bowl. The soil was then homogenized using a stainless steel spoon and clean, disposable gloves in a stainless steel bowl. Following homogenization, the subsurface soil samples for total RCRA metals and total cyanide was collected by transferring the soil into the appropriate container (one, eight-ounce glass jar for both analyses). The sample container was then labeled, taped, bubble-wrapped, and transferred to a sample cooler with ice.

It should be noted that the SAP specified the 3-4, 6-7, and 9-10 feet bgs interval for subsurface soil sampling at Locations 001 through 003. However, the sampling intervals were amended to include 2-4, 6-8, and 9-11 or 9-12 feet bgs in the field. These changes were necessary to ensure that enough soil was collected to fill all sample containers. The subsurface soil sampling depths at Locations 005 and 006 were similarly amended.

It should also that the subsurface soils were medium stiff to stiff, silty clay and clay at all locations. Homogenization with a stainless steel spoon and gloves in a stainless steel bowl was attempted for all non-VOC subsurface soil samples. However, the high clay content of the samples likely prevented thorough homogenization.

Subsurface soil sampling analytical results are presented and discussed in Section 4.2 of this report.

3.3.3 Groundwater Sampling

Subsurface groundwater samples were collected at Locations 003, 004, and 006 as discrete, grab samples from the Geoprobe boreholes using a screen point sampler. The screen point sampler was placed into the borehole approximately two feet into the saturated zone, opened, and the groundwater level was allowed to equilibrate. After equilibration, groundwater samples were collected as dictated in the EPA-approved QAPP and SAP.

3.3.3.1 Water Level Measurements

A small-diameter (0.25-inch diameter) water level probe was lowered into the screen point sampler after equilibration to measure the depth to groundwater. The depth to groundwater was measured to the nearest 0.01 feet and recorded in the field logbook. The depths to groundwater are listed below in Table 3.

3.3.3.2 Groundwater Purging

The groundwater samples were collected as grab samples from a Geoprobe screen point sampler. As such, traditional purging was not performed. However, after equilibration, approximately 0.5 to 2.0 gallons of groundwater was purged prior to sample collection. Teflon tubing was used since VOCs are a contaminant of concern at the site. At each location, Teflon tubing (3/16-inch inner diameter; 1/4-inch outer diameter) was inserted through the screen point sampler and connected to a peristaltic pump with silicone tubing. The flow rate was set to approximately 100-200 milliliters per minute (mL/min), and the groundwater sampling point was purged. At periodic intervals, groundwater purging parameters (temperature, pH, conductivity, dissolved oxygen, turbidity, oxidation/reduction potential) were measured using a Horiba U-52 multi-parameter probe and a flow-through cell. The groundwater parameter measurements were recorded in the field logbooks, and are presented in Table 3 below.

Table 3. Groundwater Monitoring Parameters

Loc.	Time	Water Level	Flow Rate	Temp	pH	D.O.	Turb.	Cond.	ORP
003	1347	~18.0	Pump turned on						
	1353	--	250	12.90	7.00	2.13	>1,000	Not measured	-224
	1355	--	100	12.88	7.01	7.64	>1,000	Not measured	-204
	1357	--	100	13.56	7.01	5.76	763	1.04	-167
	1400	--	100	13.83	7.03	5.63	701	1.03	-158
	1402	--	100	13.91	7.01	5.22	>800	1.04	-152
	1404	--	100	13.93	7.03	4.85	783	1.04	-151
	1406	--	100	14.25	7.02	4.25	>800	1.03	-151
	1408	--	100	14.13	7.03	4.04	794	1.03	-151
	1410	--	100	14.39	7.04	3.71	694	1.03	-152
	1412	--	100	14.45	7.04	3.60	640	1.03	-151
	1515	Began sample collection. Total purged = approximately 2 gallons							
004	1314	~14.0	Pump turned on						
	1316	--	200	12.78	7.26	0.06	>1,000	1.10	-52
	1317	Purged dry. Pump shut down to allow recharge. Restart at 1320							
	1322	--	200	11.81	7.29	0.03	>1,000	1.08	-36
	1323	Purged dry. Pump shut down to allow recharge. Restart at 1326							
	1327	--	200	11.40	7.28	1.76	>800	1.09	-54
	1327	Purged dry. Pump shut down to allow recharge. Restart at 1332							
	1334	--	200	11.08	7.29	2.19	>800	1.08	-33
	1335	Purged dry. Pump shut down to allow recharge. Restart at 1339							
	1340	--	200	10.68	7.31	2.47	667	1.09	-18
	1341	Purged dry. Pump shut down to allow recharge. Restart at 1350							
	1350	Began sample collection. Total purged = approximately 0.5 gallons							

Loc.	Time	Water Level	Flow Rate	Temp	pH	D.O.	Turb.	Cond.	ORP
006	1104	~13.2	Pump turned on						
	1106	--	200	12.00	6.70	2.19	>1,000	0.741	-3
	1108	Purged dry. Pump shut down to allow recharge. Restart at 1110							
	1112	--	200	11.70	6.85	2.89	>800	0.724	-8
	1115	Purged dry. Pump shut down to allow recharge. Restart at 1119							
	1121	--	200	11.62	6.93	4.19	282	0.718	-8
	1122	Purged dry. Pump shut down to allow recharge. Restart at 1125							
	1127	--	200	11.71	6.98	3.98	254	0.714	-7
	1129	Purged dry. Pump shut down to allow recharge. Restart at 1138							
	1140	Began sample collection. Total purged = approximately 1.5 gallons							

Notes: Water level is feet below ground surface; flow rate in ml/minute; temp is temperature in degrees Centigrade (°C); pH is in Standard Units (S.U); D.O is dissolved oxygen in milligrams per liter (mg/L); turb is turbidity in Nephelometric Turbidity Units (NTU), cond is conductivity in microSiemens per centimeter (µS/cm); ORP is oxidation/reduction potential in millivolts (mV).

Purged groundwater was collected in a five-gallon bucket and disposed on the ground near the groundwater sampling location (after the collection of the groundwater sample and abandonment of the borehole). The purged groundwater was allowed to seep back into the ground (i.e., no surface runoff occurred).

It should be noted that the QAPP and SAP specifies purging at least one gallon of groundwater prior to sample collection. At Location 004, only approximately 0.5 gallons were purged. The groundwater recharge rate within the screen point sampler was slow at this location, and the sampler was purged dry repeatedly. BAH decided that five rounds of purging dry and allowing recharge were adequate to ensure a representative sample from the aquifer. Therefore, a sample was obtained prior to purging the QAPP/SAP-specified one gallon of groundwater.

3.3.3.3 Groundwater Sample Collection

After purging at least gallon, groundwater samples were collected following the procedures described in the EPA-approved QAPP and SAP. To minimize the potential for cross-contamination, fractions were collected and containerized in the following order of volatilization sensitivity of the analytes of interest:

- VOCs
- Metals
- Cyanide

VOC samples were collected after removing the Horiba U-52 multi-parameter meter and flow-through cell from the sampling train. The peristaltic pump was used to fill the appropriate sample containers (two, 40-mL sample vials per VOC sample). Two drops of hydrochloric acid were added to each sample vial immediately prior to sample collection. After filling VOC sample vials, each vial were inverted and checked for air bubbles to insure zero headspace. If an air bubble appeared, the vial contents were emptied, the vial discarded, and a new sample was collected. The VOC sample containers were then labeled, taped, containerized in empty cubitainers, and placed in a sample cooler with ice.

After the collection of VOC samples, groundwater samples for total metals was collected in a 1-liter cubitainer (preserved with nitric acid). A second 1-liter cubitainer (preserved with sodium hydroxide) was used to collect the total cyanide sample. After collection, the RCRA metals and cyanide sample collection containers were sealed, labeled, taped, and placed in a sample cooler with ice.

Groundwater sampling analytical results are presented and discussed in Section 4.3 of this report. It should be noted that the groundwater samples were significantly turbid (see Table 3 below). This turbidity and its effects on COC concentrations (specifically RCRA metals) are also discussed in Section 4.3.

3.3.3.4 QC Sample Collection

The QC samples listed in Table 2 were also collected. Duplicate samples (total of three) were collected at the same location/interval as the normal samples, in the same manner. Triplicate volumes were collected for select VOC samples for MS/MSD samples (total of two). Equipment blanks (total of two) were collected by pouring deionized water (supplied by the EPA Region 7 Laboratory) over freshly-decontaminated sampling equipment, then transferring the water into sample containers.

In addition, a set of trip blanks (prepared by the EPA Region 7 Laboratory) was placed in the sample cooler used for VOC sample storage/shipment.

The results of the blank QC sampling (equipment blanks and trip blank) are presented in Sections 4.1 of this report. The results of the duplicate sampling are presented in Sections 4.2 and 4.3, as applicable.

3.3.3.5 Equipment Decontamination

To assure the quality of samples collected, decontamination of sampling equipment was conducted prior to and after each sampling location as prescribed in REPA4 SOP T-3: *Equipment Decontamination.* Disposable equipment intended for one time use (e.g., groundwater sampling tubing) was not decontaminated but was packaged for appropriate disposal. Additionally, all equipment that was reused (e.g., stainless steel spoons and bowls) was decontaminated prior to each use and if it came in contact with any potentially-contaminated media.

Equipment was decontaminated in a pre-designated area, and clean bulky equipment was stored on plastic sheeting in uncontaminated areas. Cleaned small equipment was stored in plastic bags. Materials stored for more than a few hours was also covered.

3.3.3.6 Borehole Abandonment

All soil boreholes advanced with the Geoprobe unit were abandoned as prescribed in REPA SOP T-5: *Monitoring Well Installation* and in accordance with state and local requirements. For this

site, the borings were grouted from total depth to ground surface using solid bentonite. Abandonment was finished by placing surface soil cuttings on the surface of the filled hole. Remaining cuttings were thinly scattered on the ground at/near the borehole. Groundwater pumped from the boreholes was allowed to percolate back into the ground after groundwater sample collection. Ground surface was restored to its original condition prior to leaving the site.

3.3.3.7 IDW Management

Per the PWS and TOP, soil cuttings and decontamination fluids investigation-derived waste (IDW) were left onsite. Soil cuttings were placed back into the boreholes (for surface finishing) and around the borehole, and groundwater was allowed to percolate back into the ground (after sample collection). Booz Allen containerized and removed other IDW, such as used personal protective equipment (PPE) and used sampling supplies, for proper disposal. With Mr. Smith's permission, Booz Allen disposed of PPE and used sampling supplies in GE's onsite solid waste dumpster.

3.4 SAMPLE HANDLING AND CUSTODY

For all samples collected at the site, the chain-of-custody and sample storage requirements of SW-846 were followed. The locations sampled, observations, number and type of containers, and requested analyses were recorded in the field notebook, Sample Collection Field Sheets, chain-of-custody form, and Sampling Report. These QA/QC records were and will be managed and retained as prescribed in the REPA4 QMP.

Per the PWS, Booz Allen informed the site representative (Ms. Gassman) of her right to collect split samples during the site sampling activity. Ms. Gassman did not request split samples be collected.

Booz Allen ensured the integrity and security of all samples under REPA4 control using a stringent chain-of-custody protocol comparable to the chain-of-custody protocol specified in the CLP program. Immediately following collection, samples were placed on ice in a cooler and remained refrigerated until prepared for shipment to the laboratory. Strict chain-of-custody procedures were followed and the samples were shipped to the laboratory via Federal Express on December 8, 2010 (tracking number 8746-4439-1804). Copies of the Federal Express airbill and the chain-of-custody are included in Appendix E.

It should be noted that only one set of trip blanks was provided by the EPA Region 7 Laboratory for this site. However, two sample coolers were needed to ship all of the samples collected at this site. Because of this, one sample cooler (containing the trip blanks) was dedicated to VOC samples, and the other was dedicated to non-VOC samples.

3.5 DEVIATIONS FROM THE QAPP AND/OR SAP

The following deviations from the EPA-approved QAPP and/or SAP occurred during the sampling at this site.

- QAPP Section 2.7.1 (page 2-10) and SAP Section 3.1 (page 3-1) and Section 3.1 Table 2 (page 3-2). These sections describe the collection of triplicate sample volumes for MS/MSD analyses. However, the ASRs provided by the EPA Region 7 Laboratory (included in Appendix G) state that triplicate volumes are only needed for VOC analyses. Per the ASR, the sample volume of the total metals and total cyanide samples are large enough that additional sample volume is not needed for MS/MSD analyses. Therefore, triplicate sample volumes were not collected for total metals and total cyanide samples. As the sample volumes proved to be enough for MS/MSD analyses, this deviation from the QAPP and SAP does not affect data quality.
- SAP Section 3.2.2.1 Table 5 (page 3-6). This section describes the collection total metals and total cyanide soil samples in separate containers. Per the ASR, one sample container has enough soil volume for both analyses. Therefore, separate sample containers were not filled for these analyses. As the single sample containers held enough sample for both analyses, this deviation from the SAP does not affect data quality.
- QAPP Section 3.2.6.4 (page 3-13) and SAP Section 3.2.6 (page 3-8). These sections describe the inclusion of a temperature blank in the sample coolers to allow the EPA Laboratory to verify sample temperatures upon receipt. Per a discussion with EPA Laboratory personnel, a temperature blank is not required. Therefore, these QA samples were not prepared and sent in the sample coolers. This deviation does not affect data quality, as sample temperatures are measured directly from the coolers upon receipt.
- SAP, Map 6: Sampling Locations (Appendix D). A sampling map was developed for the SAP, using a map from the 1992 RFA report. However, GE has erected its VIPO building since the RFA, and its location is where Locations 001 through 003 were planned. In addition, GE personnel provided utility maps showing the locations of several private utility lines at/near the proposed Locations 001 through 004. During the Site Sampling Visit, Locations 001 through 004 were moved to areas clear of the VIPO building and private utilities. This deviation from the SAP does not affect the integrity of the investigation, as the new sample locations are still within the areas of interest and serve the same purpose.
- SAP, Section 3.2.2.1 (page 3-5). The SAP, as well as the referenced SOPs, describe non-VOC soil sample homogenization. As described in Section 3.3 of this report, the soil samples were primarily clay. Homogenization was attempted as described in the SAP. However, thorough homogenization of clay soils in the field is not possible. Based on the sample results, this deviation from the approved SAP (lack of thorough homogenization) did not significantly affect reproducibility of the sample results.
- SAP, Section 3.1, Table 1 (page 3-1). Table 1 presents the pre-selected soil sampling intervals at each location. However, each of the intervals was changed in the field to ensure that the sample size was adequate to fill all sampling containers. This deviation from the approved SAP did not affect data quality.
- SAP, Section 3.2.3 (page 3-5). The SAP describes the purging of at least one gallon from the screen point sampler prior to groundwater sample collection. Due to slow groundwater production at Location 004, only approximately 0.5 gallons of groundwater were purged. This deviation is not expected to adversely affect data quality, as the boreholes were purged dry five times prior to sampling. Because of this, it is presumed that the groundwater samples represented grab samples from the undisturbed aquifer.

4. ANALYTICAL RESULTS

Analytical results were received by Booz Allen on February 8, 2011. The following sections present the results of the QA, soil, and groundwater sampling conducted on December 8, 2010.

4.1 QA SAMPLE RESULTS

Table 4, below, presents the analytical results of the two equipment blank (EB) samples collected on December 8, 2010, as well as the trip blank.

Table 4. GE, Field QA Sample Results (µg/L)

Analyte	Soil EB; GE-01-EB-001 (5013-105)	Groundwater EB; GE-02-EB-001 (5013-106)	Trip Blank; GE-01-TB-001 (5013-108FB)
VOCs (RLAB Method 3230.1F)			
Acetone	5.0 U	5.0 U	5.0 U
Benzene	1.0 U	1.0 U	1.0 U
Bromodichloromethane	1.0 U	1.0 U	1.0 U
Bromoform	1.0 U	1.0 U	1.0 U
Bromomethane	1.0 U	1.0 U	1.0 U
2-Butanone	5.0 U	5.0 U	5.0 U
Carbon Disulfide	1.0 U	1.0 U	1.0 U
Carbon Tetrachloride	1.0 U	1.0 U	1.0 U
Chlorobenzene	1.0 U	1.0 U	1.0 U
Chloroethane	1.0 U	1.0 U	1.0 U
Chloroform	**3.7**	**3.2**	1.0 U
Chloromethane	1.0 U	1.0 U	1.0 U
Cyclohexane	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-Chloropropane	5.0 U	5.0 U	5.0 U
Dibromochloromethane	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	1.0 U	1.0 U	1.0 U
Ethyl Benzene	1.0 U	1.0 U	1.0 U
2-Hexanone	2.0 U	2.0 U	2.0 U
Isopropylbenzene	1.0 U	1.0 U	1.0 U
Methyl Acetate	5.0 U	5.0 U	5.0 U
Methyl tert-butyl ether	1.0 U	1.0 U	1.0 U
Methylcyclohexane	1.0 U	1.0 U	1.0 U
Methylene Chloride	1.0 U	1.0 U	1.0 U

Analyte	Soil EB; GE-01-EB-001 (5013-105)	Groundwater EB; GE-02-EB-001 (5013-106)	Trip Blank; GE-01-TB-001 (5013-108FB)
4-Methyl-2-Pentanone	1.0 U	1.0 U	1.0 U
Naphthalene	2.0 U	2.0 U	2.0 U
Styrene	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	5.0 U	5.0 U	5.0 U
Tetrachloroethene	1.0 U	1.0 U	1.0 U
Toluene	1.0 U	1.0 U	1.0 U
1,2,3-Trichlorobenzene	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1.0 U	1.0 U	1.0 U
Trichloroethene	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	1.0 U	1.0 U	1.0 U
1,1,2-Trichlorotrifluoroethane	1.0 U	1.0 U	1.0 U
Vinyl Chloride	1.0 U	1.0 U	1.0 U
m and/or p-xylene	1.0 U	1.0 U	1.0 U
o-xylene	1.0 U	1.0 U	1.0 U
Metals (RLAB Method 3123.1C)			
Antimony	2.0 U	2.0 U	NA
Arsenic	1.0 U	1.0 U	NA
Barium	5.0 U	**6.3**	NA
Beryllium	1.0 U	1.0 U	NA
Cadmium	1.0 U	1.0 U	NA
Chromium	2.0 U	2.0 U	NA
Cobalt	1.0 U	1.0 U	NA
Copper	2.0 U	2.0 U	NA
Lead	1.0 U	1.0 U	NA
Manganese	1.0 U	**31.9**	NA
Nickel	1.0 U	**2.1**	NA
Selenium	5.0 U	5.0 U	NA
Silver	1.0 U	1.0 U	NA
Thallium	1.0 U	1.0 U	NA
Vanadium	1.0 U	**1.8**	NA
Zinc	2.0 U	**2.8**	NA
Cyanide (RLAB Method 3135.2J)			
Cyanide	0.00001 U	0.00001 U	NA

µg/L = micrograms per liter; RL = Reporting Limit; EB = Equipment Blank; U = Not detected at or above RL; NA = Not Analyzed; UJ = Not detected at or above RL and RL is an estimate.
Bold = Analyte detected above Reporting Limit

As shown in Table 4, the only VOC detected in the equipment blanks was chloroform (3.7 µg/L in the soil equipment blank and 3.2 µg/L in the groundwater equipment blank). However, chloroform was not detected in any of the soil or groundwater samples collected at this site. Chloroform is a common laboratory contaminant, and its detection in the equipment blank samples may be the result of contamination during routine processing or analysis. Regardless of the source, the concentrations of chloroform detected in the equipment blank samples are insignificant.

No other VOCs were detected in the equipment blank samples. In addition, no VOCs were detected above reporting limits in the trip blank sample.

Slight concentrations of RCRA metals were detected in the groundwater equipment blank sample. These include barium (6.3 µg/L), manganese (31.9 µg/L), nickel (2.1 µg/L), vanadium (1.8 µg/L), and zinc (2.8 µg/L). The barium, nickel, vanadium, and zinc detections are only slightly above their respective reporting limits. The manganese detection is notably higher than its reporting limit. However, the detection is well below its May 2010 EPA Regional Screening Level. As such, none of the RCRA metals detected in the groundwater equipment blank sample are deemed to be significant. No RCRA metals were detected in the soil equipment blank sample.

4.2 SOIL SAMPLE RESULTS

Table 5 below presents the analytical results of the surface and subsurface soil samples collected on December 8, 2010.

Analyte	Loc 003-Dup 9-12 feet bgs GE-04-SL-003 (5013-9FD) 12/8/2010	Loc 005 1-3 feet bgs GE-01-SL-005 (5013-11) 12/8/2010	Loc 005 4-6 feet bgs GE-02-SL-005 (5013-12) 12/8/2010	Loc 005 6-8 feet bgs GE-03-SL-005 (5013-13) 12/8/2010	Loc 006 1-3 feet bgs GE-01-SL-006 (5013-14) 12/8/2010	Loc 006 3-6 feet bgs GE-02-SL-006 (5013-15) 12/8/2010	Loc 006-Dup 3-6 feet bgs GE-03-SL-006 (5013-15FD) 12/8/2010	Loc 006 6-8 feet bgs GE-04-SL-006 (5013-17) 12/8/2010	Loc 006 9-11 feet bgs GE-05-SL-006 (5013-18) 12/8/2010
4-Methyl-2-Pentanone	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 UJ	0.0064 U	0.0056 U	0.023 UJ
Naphthalene	0.011 U	0.011 U	0.011 U	0.012 U	0.014 U	0.011 U	0.013 U	0.011 U	0.045 U
Styrene	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
1,1,2,2-Tetrachloroethane	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Tetrachloroethene	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Toluene	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
1,2,3-Trichlorobenzene	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
1,2,4-Trichlorobenzene	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
1,1,1-Trichloroethane	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
1,1,2-Trichloroethane	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Trichloroethene	**0.016**	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Trichlorofluoromethane	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
1,1,2-Trichlorotrifluoroethane	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Vinyl Chloride	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
m and/or p-xylene	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
o-xylene	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Metals (RLAB Method 3122.3D)									
Arsenic	6.7 U	4.2 U	6.1 U	4.1 U	6.4 U	**9.9**	**9.0**	**5.4**	6.3 U
Barium	**485**	**175**	**267**	**139**	**204**	**144**	**171**	**122**	**136**
Cadmium	**3.2**	**2.9**	**2.9**	**3.3**	**3.7**	**4.4**	**5.3**	**2.4**	**2.5**
Chromium	**17.1**	**14.6**	**15.6**	**18.3**	**18.2**	**19.7**	**20.9**	**17.1**	**18.4**
Lead	**13.2**	**20.0**	**17.4**	**15.1**	**26.3**	**21.8**	**13.4**	**11.6**	**16.0**
Selenium	13.4 U	8.4 U	12.2 U	8.2 U	12.8 U	13.4 U	12.0 U	10.1 U	12.6 U
Silver	2.7 U	1.7 U	2.4 U	1.6 U	2.6 U	2.7 U	2.4 U	2.0 U	2.5 U
Cyanide (RLAB Method 3135.2J)									
Cyanide	0.412 U	0.287 U	0.516 U	0.264 U	0.520 U	0.591 U	0.501 U	0.310 U	0.311 U

mg/kg = milligrams per kilogram; RL = Reporting Limit; U = Not detected at or above RL; UJ = Not detected at or above RL and RL is an estimate; bgs = below ground surface

Bold = Analyte detected above Reporting Limit

Table 5. GE, Soil Sample Results (mg/kg) (continued)

Analyte	Loc 003-Dup 9-12 feet bgs GE-04-SL-003 (5013-9FD) 12/8/2010	Loc 005 1-3 feet bgs GE-01-SL-005 (5013-11) 12/8/2010	Loc 005 4-6 feet bgs GE-02-SL-005 (5013-12) 12/8/2010	Loc 005 6-8 feet bgs GE-03-SL-005 (5013-13) 12/8/2010	Loc 006 1-3 feet bgs GE-01-SL-006 (5013-14) 12/8/2010	Loc 006 3-6 feet bgs GE-02-SL-006 (5013-15) 12/8/2010	Loc 006-Dup 3-6 feet bgs GE-03-SL-006 (5013-15FD) 12/8/2010	Loc 006 6-8 feet bgs GE-04-SL-006 (5013-17) 12/8/2010	Loc 006 9-11 feet bgs GE-05-SL-006 (5013-18) 12/8/2010
VOCs (RLAB Method 3230.16D)									
Acetone	**0.039 J**	**0.076 J**	**0.034 J**	**0.035 J**	**0.094 J**	**0.037**	**0.046 J**	**0.032 J**	0.023 U
Benzene	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Bromodichloromethane	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Bromoform	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Bromomethane	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
2-Butanone	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 UJ	0.0064 U	0.0056 U	0.023 UJ
Carbon Disulfide	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Carbon Tetrachloride	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Chlorobenzene	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Chloroethane	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Chloroform	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Chloromethane	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Cyclohexane	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
1,2-Dibromo-3-Chloropropane	0.0056 UJ	0.0055 UJ	0.0056 UJ	0.0062 UJ	0.0068 UJ	0.0056 UJ	0.0064 UJ	0.0056 UJ	0.023 UJ
Dibromochloromethane	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
1,2-Dibromoethane	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
1,2-Dichlorobenzene	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
1,3-Dichlorobenzene	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
1,4-Dichlorobenzene	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Dichlorodifluoromethane	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
1,1-Dichloroethane	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
1,2-Dichloroethane	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
1,1-Dichloroethene	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
cis-1,2-Dichloroethene	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
trans-1,2-Dichloroethene	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
1,2-Dichloropropane	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
cis-1,3-Dichloropropene	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
trans-1,3-Dichloropropene	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Ethyl Benzene	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
2-Hexanone	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Isopropylbenzene	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Methyl Acetate	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 UJ	0.0064 U	0.0056 U	0.023 UJ
Methyl tert-butyl ether	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Methylcyclohexane	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U
Methylene Chloride	0.0056 U	0.0055 U	0.0056 U	0.0062 U	0.0068 U	0.0056 U	0.0064 U	0.0056 U	0.023 U

Analyte	Loc 001 2-4 feet bgs GE-01-SL-001 (5013-1) 12/8/2010	Loc 001 6-8 feet bgs GE-02-SL-001 (5013-2) 12/8/2010	Loc 001 9-11 feet bgs GE-03-SL-001 (5013-3) 12/8/2010	Loc 002 2-4 feet bgs GE-01-SL-002 (5013-4) 12/8/2010	Loc 002 6-8 feet bgs GE-02-SL-002 (5013-5) 12/8/2010	Loc 002 9-11 feet bgs GE-03-SL-002 (5013-6) 12/8/2010	Loc 003 2-4 feet bgs GE-01-SL-003 (5013-7) 12/8/2010	Loc 003 6-8 feet bgs GE-02-SL-003 (5013-8) 12/8/2010	Loc 003 9-12 feet bgs GE-03-SL-003 (5013-9) 12/8/2010
Naphthalene	0.012 U	0.033 U	0.012 U	0.012 U	0.043 U	0.010 U	0.012 U	0.030 U	0.012 U
Styrene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
1,1,2,2-Tetrachloroethane	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Tetrachloroethene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Toluene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
1,2,3-Trichlorobenzene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
1,2,4-Trichlorobenzene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
1,1,1-Trichloroethane	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
1,1,2-Trichloroethane	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Trichloroethene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	**0.0094**	0.006 U	**0.047**	**0.021**
Trichlorofluoromethane	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
1,1,2-Trichlorotrifluoroethane	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Vinyl Chloride	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
m and/or p-xylene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
o-xylene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Metals (RLAB Method 3122.3D)									
Arsenic	5.9 U	4.2 U	4.7 U	**9.7**	5.5 U	6.6 U	**15.1**	**5.7**	6.2 U
Barium	**209**	**101**	**163**	**219**	**107**	**131**	**182**	**132**	**155**
Cadmium	**4.1**	**1.3**	**2.2**	**5.3**	**2.4**	**2.1**	**5.9**	**2.7**	**2.5**
Chromium	**17.0**	**14.2**	**15.7**	**19.6**	**16.2**	**16.7**	**18.6**	**16.1**	**21.0**
Lead	**17.9**	**9.7**	**12.0**	**18.7**	**10.7**	**15.6**	**18.6**	**11.0**	**11.9**
Selenium	11.7 UJ	8.4 U	9.3 U	10.1 U	10.9 U	13.2 U	9.2 U	9.8 U	12.5 U
Silver	2.3 U	1.7 U	1.9 U	2.0 U	2.2 U	2.6 U	1.8 U	2.0 U	2.5 U
Cyanide (RLAB Method 3135.2J)									
Cyanide	0.493 U	0.446 U	0.304 U	0.305 U	0.287 U	0.298 U	0.470 U	0.298 U	0.426 U

mg/kg = milligrams per kilogram; RL = Reporting Limit; U = Not detected at or above RL; UJ = Not detected at or above RL and RL is an estimate; bgs = below ground surface

Bold = Analyte detected above Reporting Limit

Table 5. GE, Soil Sample Results (mg/kg)

Analyte	Loc 001 2-4 feet bgs GE-01-SL-001 (5013-1) 12/8/2010	Loc 001 6-8 feet bgs GE-02-SL-001 (5013-2) 12/8/2010	Loc 001 9-11 feet bgs GE-03-SL-001 (5013-3) 12/8/2010	Loc 002 2-4 feet bgs GE-01-SL-002 (5013-4) 12/8/2010	Loc 002 6-8 feet bgs GE-02-SL-002 (5013-5) 12/8/2010	Loc 002 9-11 feet bgs GE-03-SL-002 (5013-6) 12/8/2010	Loc 003 2-4 feet bgs GE-01-SL-003 (5013-7) 12/8/2010	Loc 003 6-8 feet bgs GE-02-SL-003 (5013-8) 12/8/2010	Loc 003 9-12 feet bgs GE-03-SL-003 (5013-9) 12/8/2010
VOCs (RLAB Method 3230.16D)									
Acetone	**0.033 J**	0.017 U	**0.039 J**	**0.034 J**	0.022 U	**0.026 J**	**0.074 J**	0.015 U	**0.052 J**
Benzene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Bromodichloromethane	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Bromoform	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Bromomethane	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
2-Butanone	0.0062 U	0.017 UJ	0.0058 U	0.0059 U	0.022 UJ	0.0052 U	0.006 U	0.015 UJ	0.0058 U
Carbon Disulfide	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Carbon Tetrachloride	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Chlorobenzene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Chloroethane	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Chloroform	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Chloromethane	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Cyclohexane	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
1,2-Dibromo-3-Chloropropane	0.0062 UJ	0.017 UJ	0.0058 UJ	0.0059 UJ	0.022 UJ	0.0052 UJ	0.006 UJ	0.015 UJ	0.0058 UJ
Dibromochloromethane	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
1,2-Dibromoethane	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
1,2-Dichlorobenzene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
1,3-Dichlorobenzene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
1,4-Dichlorobenzene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Dichlorodifluoromethane	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
1,1-Dichloroethane	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
1,2-Dichloroethane	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
1,1-Dichloroethene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
cis-1,2-Dichloroethene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
trans-1,2-Dichloroethene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
1,2-Dichloropropane	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
cis-1,3-Dichloropropene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
trans-1,3-Dichloropropene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Ethyl Benzene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
2-Hexanone	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Isopropylbenzene	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Methyl Acetate	0.0062 U	0.017 UJ	0.0058 U	0.0059 U	0.022 UJ	0.0052 U	0.006 U	0.015 UJ	0.0058 U
Methyl tert-butyl ether	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Methylcyclohexane	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
Methylene Chloride	0.0062 U	0.017 U	0.0058 U	0.0059 U	0.022 U	0.0052 U	0.006 U	0.015 U	0.0058 U
4-Methyl-2-Pentanone	0.0062 U	0.017 UJ	0.0058 U	0.0059 U	0.022 UJ	0.0052 U	0.006 U	0.015 UJ	0.0058 U

As shown in Table 5, trichloroethene (TCE) was detected in the Location 002 (9-11 feet bgs), Location 003 (6-8 feet bgs), Location 003 (9-12 feet bgs), and the duplicate Location 003 (9-12 feet bgs) samples. These detections are screened and discussed in Section 5.1 of this report. In addition, slight concentrations of acetone were detected in nearly all samples. These acetone detections are treated as actual soil detections for the purposes of risk screening in Section 5.1 of this report. However, it should be noted that acetone is a common laboratory solvent and its detection may be the result of routine sample processing in the laboratory environment.

Arsenic, barium, cadmium, chromium, and lead were detected in soil samples. These COCs were generally detected at similar concentrations at all six Sampling Locations and across all sampling intervals. Risk screening analyses for these detected COCs are presented in Section 5.1 of this report.

4.3 GROUNDWATER SAMPLE RESULTS

Table 6 below presents the analytical results of the groundwater samples collected on December 8, 2010.

Table 6. GE, Groundwater Sample Results (µg/L)

Analyte	Loc 003; GE-01-GW-003 (5013-101)	Loc 003 - Dup; GE-02-GW-003 (5013-101FD)	Loc 004; GE-01-GW-004 (5013-103)	Loc 006; GE-01-GW-006 (5013-104)
VOCs (RLAB Method 3230.1F)				
Acetone	5.0 U	5.0 U	5.0 U	5.0 U
Benzene	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone	5.0 U	5.0 U	5.0 U	5.0 U
Carbon Disulfide	1.0 U	1.0 U	1.0 U	1.0 U
Carbon Tetrachloride	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-Chloropropane	5.0 U	5.0 U	5.0 U	5.0 U
Dibromochloromethane	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	**3.3**	**3.1**	1.0 U	1.0 U
cis-1,2-Dichloroethene	**4.2**	**4.0**	1.0 U	1.0 U
trans-1,2-Dichloroethene	1.0 U	1.0 U	1.0 U	1.0 U

Analyte	Loc 003; GE-01-GW-003 (5013-101)	Loc 003 - Dup; GE-02-GW-003 (5013-101FD)	Loc 004; GE-01-GW-004 (5013-103)	Loc 006; GE-01-GW-006 (5013-104)
1,2-Dichloropropane	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	1.0 U	1.0 U	1.0 U	1.0 U
Ethyl Benzene	1.0 U	1.0 U	1.0 U	1.0 U
2-Hexanone	2.0 U	2.0 U	2.0 U	2.0 U
Isopropylbenzene	1.0 U	1.0 U	1.0 U	1.0 U
Methyl Acetate	5.0 U	5.0 U	5.0 U	5.0 U
Methyl tert-butyl ether	1.0 U	1.0 U	1.0 U	1.0 U
Methylcyclohexane	1.0 U	1.0 U	1.0 U	1.0 U
Methylene Chloride	1.0 U	1.0 U	1.0 U	1.0 U
4-Methyl-2-Pentanone	1.0 U	1.0 U	1.0 U	1.0 U
Naphthalene	2.0 U	2.0 U	2.0 U	2.0 U
Styrene	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	1.0 U	1.0 U	1.0 U	1.0 U
1,2,3-Trichlorobenzene	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	**130**	**140**	**93**	1.0 U
Trichlorofluoromethane	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichlorotrifluoroethane	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	1.0 U	1.0 U	1.0 U	1.0 U
m and/or p-xylene	1.0 U	1.0 U	1.0 U	1.0 U
o-xylene	1.0 U	1.0 U	1.0 U	1.0 U
Metals (RLAB Method 3123.1C)				
Antimony	2.0 U	2.0 U	2.0 U	2.0 U
Arsenic	**22.2**	**15.0**	**4.9**	**2.2**
Barium	**392**	**307**	**492**	**255**
Beryllium	1.0 U	100 U	100 U	100 U
Cadmium	**1.5**	1.0 U	1.0 U	1.0 U
Chromium	**48.6**	**35.8**	**16.6**	**8.2**
Cobalt	**22.9**	**16.2**	**5.9**	**7.5**
Copper	**29.3**	**22.2**	**7.4**	**5.0**
Lead	**20.6**	**13.4**	**5.3**	**3.0**
Manganese	**1920**	**1320**	**2030**	**1590**
Nickel	**60.9**	**50.1**	**22.8**	**16.4**
Selenium	5.0 U	5.0 U	5.0 U	5.0 U
Silver	1.0 U	1.0 U	1.0 U	1.0 U
Thallium	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	**71.8**	**48.6**	**19.5**	**12.6**
Zinc	**119**	**119**	**35.4**	**51.9**
Cyanide (RLAB Method 3135.2J)				
Cyanide	0.00001 U	0.00001 U	0.00001 U	0.00001 U

µg/L = micrograms per liter; RL = Reporting Limit; U = Not detected at or above RL; NA = Not Analyzed;
UJ = Not detected at or above RL and RL is an estimate.
Bold = Analyte detected above Reporting Limit

As shown in Table 6, TCE was detected in groundwater samples from Locations 003 and 004. In addition, 1,1-dichloroethene (1,1-DCE) and cis-1,2-DCE were detected in groundwater from Location 003. 1,1-DCE and cis-1,2-DCE may be daughter products from TCE degradation in groundwater. Each of these VOC detections are discussed in Section 5.2 of this report.

In addition to these VOCs, several RCRA metals were detected in groundwater samples above their respective reporting limits. These detections include arsenic, barium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, vanadium, and/or zinc. Total metals results are also included in the discussion and risk screening presented in Section 5.2.

5. RISK SCREENING ANALYSIS

5.1 SOIL SCREENING RESULTS

Soil sampling was performed at two separate areas at the GE facility. Locations 001 through 004 are located on the west side of the property, near the former location of the wastewater treatment facility's underground storage tanks. Locations 005 and 006 are located on the east side of the property near the Hazardous Materials Storage Building. These two areas are evaluated separately in this section. Locations 001 through 004 are referenced as the West Side in the screening tables below. Locations 005 and 006 are referenced as the East Side.

Tables 7a through 7d below present the soil detections screened against the May 2010 EPA Regional Screening Levels (RSLs). For each of the two areas, the maximum detected concentration of each analyte is used to for screening purposes. Tables 7a and 7b present the screening for each of the areas against Industrial RSLs. Tables 7c and 7d present the screenings against Residential RSLs.

The RSLs are based on 1 x 10^{-6} and 1 x 10^{-4} incremental individual lifetime cancer risks for carcinogenic COCs or a Hazard Quotient (HQ) of 1.0 for noncarcinogenic COCs. For each detected COC, the individual cancer risk and/or noncancer risk is calculated in the tables. The sum of cancer and noncancer risks are also provided in the tables.

Table 7a. GE, West Side, Soil Results Screening Against Industrial RSLs

Detected Analyte	Units	Maximum Concentration	RSL Cancer	RSL Noncancer	Cancer Risk (1x10^6)	Cancer Risk (1x10^4)	Noncancer Risk (HQ=1)
VOCs							
Acetone	mg/kg	0.074	--	6.3E+05	--	--	0.000
Trichloroethene	mg/kg	0.047	1.4E+01	--	0.003	0.000	--
Metals							
Arsenic	mg/kg	15.1	1.6E+00	2.6E+02	9.438	0.094	0.058
Barium	mg/kg	485	--	1.9E+05	--	--	0.003
Cadmium	mg/kg	5.9	9.3E+03	8.0E+02	0.001	0.000	0.007
Chromium (IV)	mg/kg	21	5.6E+00	3.1E+03	3.750	0.038	0.007
Lead	mg/kg	18.6	--	8.0E+02	--	--	0.023
				Cumulative Risk:	13.191	0.132	0.098

As shown in Table 7a, the VOCs detected in West Side soils (Locations 001 through 004) have negligible risk impact when screened against Industrial RSLs.

The maximum arsenic and chromium detections in West Side soil exceed their respective 1 x 10^{-6} carcinogenic screening levels. It should be noted that the chromium concentrations detected at the site were total chromium (incorporating all valence states of chromium). Chromium (VI) is the most toxic of these valence states. It is unlikely that the total chromium detected at the GE site are exclusively chromium (VI). However, to be conservative, the chromium (VI) screening level was selected for this risk screening. Even with this conservative approach, the detected concentrations of chromium do not individually exceed the 1 x 10^{-4}

carcinogenic screening level. Where arsenic was detected, the concentrations are also well below the 1 x 10^{-4} carcinogenic screening level. In addition, none of the maximum detected RCRA metals individually or cumulatively exceed the noncarcinogenic HQ of 1.0.

Table 7b. GE, East Side, Soil Results Screening Against Industrial RSLs

Detected Analyte	Units	Maximum Concentration	RSL Cancer	RSL Noncancer	Cancer Risk (1x10^6)	Cancer Risk (1x10^4)	Noncancer Risk (HQ=1)
VOCs							
Acetone	mg/kg	0.094	--	6.3E+05	--	--	0.000
Metals							
Arsenic	mg/kg	9.9	1.6E+00	2.6E+02	6.188	0.062	0.038
Barium	mg/kg	267	--	1.9E+05	--	--	0.001
Cadmium	mg/kg	5.3	9.3E+03	8.0E+02	0.001	0.000	0.007
Chromium (IV)	mg/kg	20.9	5.6E+00	3.1E+03	3.732	0.037	0.007
Lead	mg/kg	26.3	--	8.0E+02	--	--	0.033
				Cumulative Risk:	9.920	0.099	0.086

The maximum acetone detection in East Side soils has a negligible risk impact when screened against Industrial RSLs.

As with the West Side soils, the maximum arsenic and chromium detections exceed their 1 x 10^{-6} carcinogenic risk screening levels. However, neither exceed their respective 1 x 10^{-4} carcinogenic risk screening levels. None of the noncarcinogenic COCs individually or cumulatively exceed a noncarcinogenic HQ of 1.0.

Table 7c. GE, West Side, Soil Results Screening Against Residential RSLs

Detected Analyte	Units	Maximum Concentration	RSL Cancer	RSL Noncancer	Cancer Risk (1x10^6)	Cancer Risk (1x10^4)	Noncancer Risk (HQ=1)
VOCs							
Acetone	mg/kg	0.074	--	6.1E+04	--	--	0.000
Trichloroethene	mg/kg	0.047	2.8E+00	--	0.017	0.000	--
Metals							
Arsenic	mg/kg	15.1	3.9E-01	2.2E+01	38.718	0.387	0.686
Barium	mg/kg	485	--	1.5E+04	--	--	0.032
Cadmium	mg/kg	5.9	1.8E+03	7.0E+01	0.003	0.000	0.084
Chromium (IV)	mg/kg	21	2.9E-01	2.3E+02	72.414	0.724	0.091
Lead	mg/kg	18.6	--	4.0E+02	--	--	0.047
				Cumulative Risk:	111.152	1.112	0.941

The maximum VOC detections in West Side soils do not significantly affect carcinogenic or noncarcinogenic risk when screened against Residential RSLs.

The maximum arsenic and chromium concentrations exceed their respective 1 x 10^{-6} carcinogenic screening levels when screened against Residential RSLs, but neither COC individually exceeds its 1 x 10^{-4} carcinogenic screening level. The cumulative carcinogenic risk shown in Table 7c slightly

exceeds 1 x 10^{-4}; however, this calculation is likely biased high due to the conservative application of the chromium (VI) screening criterion to the total chromium detection.

The maximum concentrations of RCRA metals detected in West Side soils do not individually or cumulatively exceed an HQ of 1.0 when screened against the Residential RSLs.

Table 7d. GE, East Side, Soil Results Screening Against Residential RSLs

Detected Analyte	Units	Maximum Concentration	RSL Cancer	RSL Noncancer	Cancer Risk (1x10^6)	Cancer Risk (1x10^4)	Noncancer Risk (HQ=1)
VOCs							
Acetone	mg/kg	0.094	--	6.1E+04	--	--	0.000
Metals							
Arsenic	mg/kg	3.9E-01	2.2E+01	25.385	0.254	0.450	3.9E-01
Barium	mg/kg	--	1.5E+04	--	--	0.018	--
Cadmium	mg/kg	1.8E+03	7.0E+01	0.003	0.000	0.076	1.8E+03
Chromium (IV)	mg/kg	2.9E-01	2.3E+02	72.069	0.721	0.091	2.9E-01
Lead	mg/kg	--	4.0E+02	--	--	0.066	--
Cumulative Risk:					97.457	0.975	0.700

The maximum acetone detection in East Side soils has a negligible risk impact when screened against Residential RSLs.

As previously discussed, the maximum arsenic and chromium detections exceed their 1 x 10^{-6} carcinogenic risk screening levels when screened against Residential RSLs. However, neither exceed their respective 1 x 10^{-4} carcinogenic risk screening levels, and none of the noncarcinogenic COCs individually or cumulatively exceed a noncarcinogenic HQ of 1.0.

5.2 GROUNDWATER SCREENING RESULTS

Tables 8a and 8b below present the groundwater detections screened against the May 2010 EPA Regional Screening Levels (RSLs). Table 8a presents the maximum COC concentrations from two groundwater samples (Locations 003 and 004) collected from the West Side. Table 8b presents the maximum COC concentrations from one groundwater sample (Location 006) collected from the East Side. The maximum concentrations of each analyte are used to determine the site risk by screening against Tap Water RSLs.

The Tap Water RSLs are based on 1 x 10^{-6} and 1 x 10^{-4} incremental individual lifetime cancer risks for carcinogenic COCs, an HQ of 1.0 for noncarcinogenic COCs, or the EPA Maximum Contaminant Level (MCL). For each detected COC, the individual cancer risk and/or noncancer risk is calculated in Tables 8a and 8b. The sum of cancer and noncancer risks are also provided in the tables below.

Table 8a. GE, West Side, Groundwater Screening Against Tap Water RSLs

Detected Analyte	Units	Maximum Concentration	RSL Cancer	RSL Noncancer	Cancer Risk (1x10^6)	Cancer Risk (1x10^4)	Noncancer Risk (HQ=1)

VOCs							
1,1-Dichloroethene	ug/L	3.3	--	3.4E+02	--	--	0.010
cis-1,2-Dichloroethene	ug/L	4.2	--	3.7E+02	--	--	0.011
Trichloroethene	ug/L	140	2.0E+00	--	70.000	0.700	--
Metals							
Arsenic	ug/L	22.2	4.5E-02	1.1E+01	493.333	4.933	2.018
Barium	ug/L	492	--	7.3E+03	--	--	0.067
Cadmium	ug/L	1.5	--	1.8E+01	--	--	0.083
Chromium (total)	ug/L	48.6	--	1.0E+02	--	--	0.486
Cobalt	ug/L	22.9	--	1.1E+01	--	--	2.082
Copper	ug/L	29.3	--	1.5E+03	--	--	0.020
Lead	ug/L	20.6	--	1.5E+01	--	--	1.373
Manganese	ug/L	2030	--	8.8E+02	--	--	2.307
Nickel	ug/L	60.9	--	7.3E+02	--	--	0.083
Vanadium	ug/L	71.8	--	1.8E+02	--	--	0.399
Zinc	ug/L	119	--	1.1E+04	--	--	0.011
				Cumulative Risk:	563.333	5.633	8.951

The 1,1-DCE and cis-1,2-DCE concentrations detected in West Side groundwater samples have negligible effect on noncarcinogenic risk. TCE was detected at both West Side groundwater sampling locations in excess of its 1 x 10^{-6} carcinogenic risk screening level. However, as shown in Table 8a, the maximum TCE concentration detected in West Side groundwater samples does not exceed its 1 x 10^{-4} carcinogenic risk screening level.

Several RCRA metals were detected in the West Side groundwater samples. The maximum arsenic detection exceeds its 1 x 10^{-4} carcinogenic risk screening level. In addition, arsenic, cobalt, lead, and manganese individually exceed a noncarcinogenic HQ of 1.0. The cumulative HQ for all noncarcinogenic COCs is 8.951 when screened against Tap Water RSLs. However, it should be noted that the groundwater samples collected from the West Side locations were highly turbid with sediment and/or silt (see Table 3). Excess turbidity can cause significantly elevated metals concentrations in groundwater samples.

Table 8b. GE, East Side, Groundwater Screening Against Tap Water RSLs

Detected Analyte	Units	Maximum Concentration	RSL Cancer	RSL Noncancer	Cancer Risk (1x10^6)	Cancer Risk (1x10^4)	Noncancer Risk (HQ=1)
Metals							
Arsenic	ug/L	2.2	4.5E-02	1.1E+01	48.889	0.489	0.200
Barium	ug/L	255	--	7.3E+03	--	--	0.035
Chromium (total)	ug/L	8.2	--	1.0E+02	--	--	0.082
Cobalt	ug/L	7.5	--	1.1E+01	--	--	0.682
Copper	ug/L	5	--	1.5E+03	--	--	0.003
Lead	ug/L	3	--	1.5E+01	--	--	0.200
Manganese	ug/L	1590	--	8.8E+02	--	--	1.807
Nickel	ug/L	16.4	--	7.3E+02	--	--	0.022
Vanadium	ug/L	12.6	--	1.8E+02	--	--	0.070
Zinc	ug/L	51.9	--	1.1E+04	--	--	0.005
				Cumulative Risk:	48.889	0.489	3.106

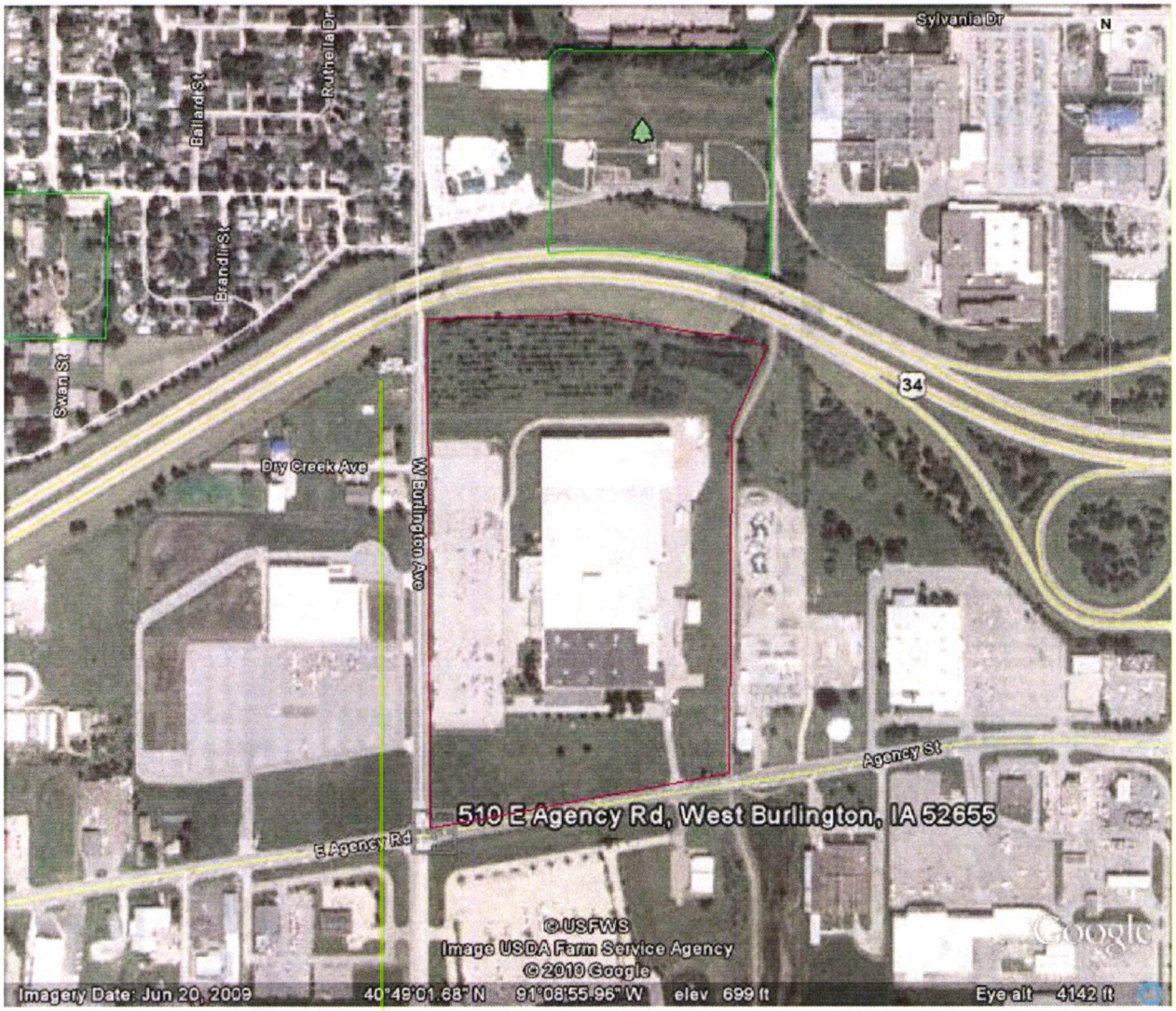
No VOCs were detected in the East Side groundwater sample.

Several RCRA metals were detected in the East Side groundwater sample. The maximum arsenic detection exceeds its 1 x 10^{-6} carcinogenic risk screening level, but not its 1 x 10^{-4} carcinogenic risk screening level . Of the noncarcinogenic metals detected, only manganese individually exceeds its HQ of 1.0. The cumulative HQ for all noncarcinogenic COCs is 3.106 when screened against Tap Water RSLs. However, as previously discussed, the groundwater sample was highly turbid. This elevated turbidity can cause significantly elevated metals concentrations in groundwater samples.

5.3 POTENTIAL RISK RECEPTORS

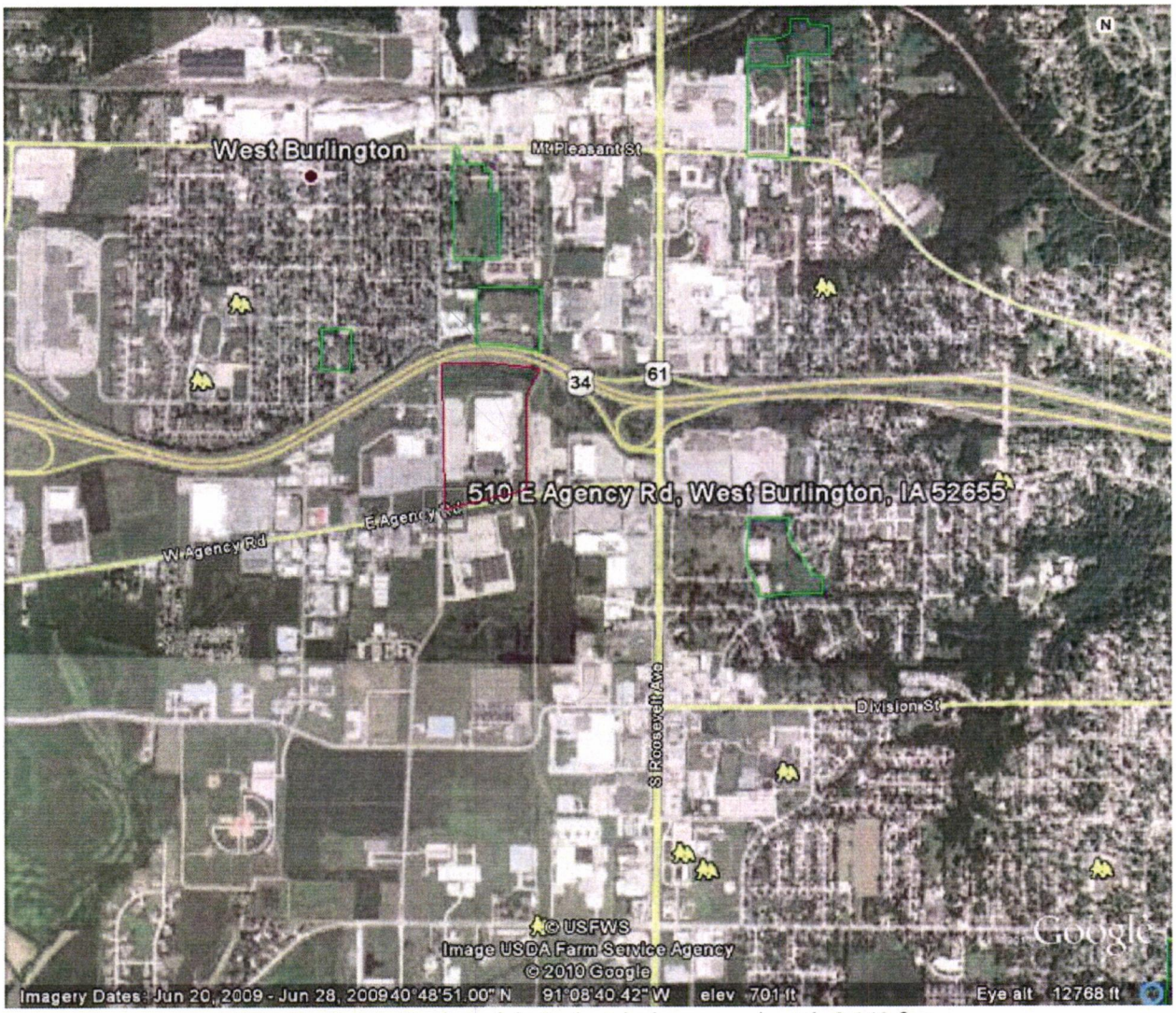
5.3.1 Adjacent Properties

According to the Des Moines County Assessor's webpage and its associated map links (www.co.des-moines.ia.us/assessor/assessorhome.asp), the GE site is zoned as an industrial lot. The property to the northwest and north is residential, while the remaining surrounding properties are light industrial and/or commercial. An aerial map from Google Earth, showing the neighboring property, is included as Map A below.



Map A. GoogleEarth Aerial. Scale: 1 inch = approximately 610 feet.

Booz Allen also used Google Earth Public to identify public use areas within approximately one mile of the site. Public use areas, such as schools, parks/recreation areas, and hospitals, are shown on Map B below.



Map B. Google Earth Aerial. Scale: 1 inch = approximately 2,140 feet.

A summary of the sites shown on Map B is included below in Table 9.

Table 9. Public Use Areas Near the GE Site

Area	Distance From Site	Direction
West Burlington Jr/Sr High School	~3,330 feet	WNW
Longmeadow Park	~1,860 feet	NW
West Burlington Elementary School	~3,190 feet	NW
West Burlington Community Park	~1,000 feet	N
Luers Park	~2,070 feet	N
Head Start Southeast Iowa (not shown on Map B)	~3,400 feet	N
Hope Haven Development Center (not shown on Map B)	~5,020 feet	N
Sunny Day Pre School (not shown on Map B)	~5,860 feet	NE
Community Field	~4,430 feet	NE
Little Angels Childcare	~4,200 feet	NE
Burlington Christian School (not shown on Map B)	~3,750 feet	E
Cottonwood Park	~3,250 feet	ESE
Next Step Christian School (not shown on Map B)	~4,050 feet	SE

Area	Distance From Site	Direction
Burlington Community High School	~5,260 feet	SE
Notre Dame Elementary School	~5,380 feet	SE
Burlington Notre Dame Schools	~5,650 feet	SE
Great Prairie Area Education Agency	~5,800 feet	SSE

Note: distance is measured from approximate center of the GE site.

5.3.2 Potential Soil Risk Receptors

The sampling locations are in grassed areas on the east and west side of the facility. All detected COCs were from subsurface soil samples, and the grassed surface cover effectively limits potential receptor contact with subsurface soil. The grassed surface cover also limits migration of subsurface soil contaminants offsite. In addition, the entire facility is secured with a locked gate, fence, and manned security, preventing unauthorized access to the sampling area. It appears that the only potential onsite soil risk receptors at the GE site would be onsite construction workers. Offsite risk receptor pathways do not appear to be complete.

5.3.3 Potential Groundwater Risk Receptors

During a 1956 geotechnical investigation, groundwater was reached in borings at an average depth of approximately 10 feet below ground surface (bgs). Groundwater flow was reported to be toward the southeast.

Booz Allen contacted the IDNR, Iowa Geological and Water Survey section (IGS) to request identification of all groundwater wells within a one-mile radius of the GE facility. The search results received from the Iowa Geological and Water Survey include a map and well information from various State databases. These results are included in Appendix C. Table 10 presents a summary of the well search.

Table 10. Groundwater Wells Within One Mile of the GE Facility

Owner	ID	Database	Database Type	Distance from Site*	Other Information**
Ingerherm, Al	3552	GEOU	IGS well database	~0.25 mi. SSW	Depth: 75 feet; Completion Date: 1949; Well Type: Private
Leffler, John	4966	GEOU	IGS well database	~0.55 mi. SSW	Depth: 165 feet; Completion Date: 1951; Well Type: Private
Burlington Drive In Theater	2410775	SDWIS	Safe Drinking Water Information System	~0.25 mi. SW	Depth: Unk; Completion Date: Unk; Status: Active
Leffler, John	6368	GEOU	IGS well database	~0.45 mi. SW	Depth: 157 feet; Completion Date: 1954; Well Type: Private
Gilland, Lyle	3026	GEOU	IGS well database	~0.6 mi. SW	Depth: 61 feet; Completion Date: 1947; Well Type: Private
Vanweis, Bob	5063	GEOU	IGS well database	~0.8 mi. SW	Depth: 122 feet; Completion Date: 1951; Well Type: Private
Eggar, Jeff	2143072	PWTS	Private Well Tracking System	~0.75 mi. WNW	Depth: Unk; Completion Date: Unk; Well Type: Heat Pump
Gladman Garden Center	17575	GEOU	IGS well database	~0.1 mi. NW	Depth: 100 feet; Completion Date: 1965; Well Type: Private

Owner	ID	Database	Database Type	Distance from Site*	Other Information**
White, Mrs.	2802	GEOU	IGS well database	~0.4 mi. NW	Depth: 115 feet; Completion Date: 1946; Well Type: Private
Luers, E.H.	4788	GEOU	IGS well database	~0.7 mi. NW	Depth: 72 feet; Completion Date: 1950; Well Type: Private
West Burlington, City of	576	GEOU; PUB	IGS well database; Public Wells	~0.8 mi. NW	Well #3; Depth: 1,101 feet; Completion Date: 1938; Well Type: Municipal; Inactive
Unknown	2102537	PWTS	Private Well Tracking System	~0.8 mi. NNW	Depth: UNK; Completion Date: UNK; Well Type: Heat Pump; Status: Retired
Houtz	4962	GEOU	IGS well database	~0.9 mi. N	Depth: 65 feet; Completion Date: 1951; Well Type: Private
Rohleder, Julius	1612	GEOU	IGS well database	~0.95 mi N	Depth: 100 feet; Completion Date: 1942; Well Type: Private
Hollenbeck, Harry	3396	GEOU	IGS well database	~0.8 mi. NNE	Depth: 90 feet; Completion Date: 1948; Well Type: Private
Engle, Harold	2253	GEOU	IGS well database	~0.95 mi NNE	Depth: 65 feet; Completion Date: 1946; Well Type: Private
K.B.U.R.	3565	GEOU	IGS well database	~0.5 mi. NE	Depth: 125 feet; Completion Date: 1948; Well Type: Other
Romrey, Glen	4734	GEOU	IGS well database	~0.5 mi NE	Depth: 90 feet; Completion Date: 1950; Well Type: Private
Kerns, Naomi	2100589	PWTS	Private Well Tracking System	~0.8 mi. NE	Depth: 100; Completion Date: 1950; Well Type: Household; Status: Active
Flint Hills Golf Course	36346	GEOU	IGS well database	~0.85 mi. ENE	Depth: 185 feet; Completion Date: 1994; Well Type: UNK
Ashby, John	4956	GEOU	IGS well database	~0.55 mi E	Depth: 80 feet; Completion Date: 1951; Well Type: Private
Wery, Allen	2361	GEOU	IGS well database	~0.50 mi. ESE	Depth: 80 feet; Completion Date: 1946; Well Type: Private
Sinn, Harold	4197	GEOU	IGS well database	~0.2 mi SE	Depth: 80 feet; Completion Date: 1950; Well Type: Private
Crabb, Robert	20571	GEOU	IGS well database	~0.7 mi SSE	Depth: 140 feet; Completion Date: 1967; Well Type: Private
Diewold, Tom	2094662	PWTS	Private Well Tracking System	~0.8 mi SSE	Depth: 110 feet; Completion Date: 1950; Well Type: Household; Status: Active
H-Q Truck Lines	18021	GEOU	IGS well database	~0.7 mi S	Depth: 60 feet; Completion Date: 1965; Well Type: Private

* = Approximate distance, in miles, from the search radius source
** = Other relevant information from the database search (if reported).

Five of the private/household wells listed in Table 10 are located east-southeast to south of the GE site. Based on the groundwater flow direction reported in a 1956 geotechnical investigation (southeast), these five wells may be hydraulically downgradient of the site. A search of the listed databases revealed no other pertinent data about these wells (other than listed in Table 10). Other than the one well (ID #2094662), it is unknown if the wells are still being used as water sources.

It should be noted that the well search results presented in Table 10 and Appendix C are not considered exhaustive to all groundwater wells within a one-mile radius of the site. It was reported by representatives of IGS and Iowa's Private Well Program that the requirement to register and/or permit wells in Iowa is relatively new. The databases will contain active public drinking water wells, industrial use wells, relatively new private wells, and wells that have associated water quality testing. However, it is assumed that older, private groundwater wells exist within the one-mile radius which are not identified in the well search.

6. CONCLUSIONS

6.1 RESULTS OF THE SITE SAMPLING VISIT

Sampling was conducted at the GE site in West Burlington, Iowa on December 8, 2010, per the QAPP and site-specific SAP, with the exception of the deviations listed in Section 3.5. None of these deviations adversely affect data quality. The data collected adequately addresses the purpose of the sampling visit, which is to determine if contamination exists at the GE site.

Analytical results from the site sampling, received on February 8, 2011, were screened against May 2010 EPA RSLs to determine site risks. For the purposes of risk screening, the sample locations at the site are divided into two areas and screened separately. Locations 001 through 004 (near and downgradient of the former wastewater treatment UST site) are identified as the West Side. Locations 005 and 006 (downgradient of the Hazardous Materials Storage Building) are identified as the East Side. The maximum soil and groundwater detections for each side are used in risk screening calculations.

None of the COCs detected in East Side soils individually or cumulatively exceed Industrial RSLs (1×10^{-4} incremental carcinogenic risk or noncarcinogenic HQ of 1.0). In addition, none of the maximum COC detections in East Side soils individually or cumulatively exceed Residential RSLs.

None of the carcinogenic COC detections (TCE, arsenic, cadmium, and chromium) in West Side soils individually exceed Industrial or Residential RSLs (1×10^{-4} incremental carcinogenic risk). The cumulative carcinogenic risk for the maximum West Side detections slightly exceeds 1×10^{-4} under the Residential scenario. However, this calculation includes the screening assumption that the total chromium detected in West Side soil is exclusively chromium (VI). As this assumption is conservative, the carcinogenic risk screening under both the Industrial and Residential scenarios is likely biased high. For noncarcinogenic COCs detected in West Side soils, none individually or cumulatively exceed an HQ of 1.0.

For groundwater, TCE was detected in West Side groundwater samples in excess of its 1×10^{-6} carcinogenic risk screening level when screened against Tap Water RSLs. However, the maximum TCE concentration detected in West Side groundwater does not exceed its 1×10^{-4} carcinogenic risk screening level. Several RCRA metals were also detected in the West Side groundwater samples. The maximum arsenic detection exceeds its 1×10^{-4} carcinogenic risk screening level. In addition, arsenic, cobalt, lead, and manganese each individually exceed a noncarcinogenic HQ of 1.0; and the cumulative HQ for all noncarcinogenic COCs in West Side groundwater is 8.951. However, it should be noted that the groundwater samples were highly turbid with sediment and/or silt, and that excess turbidity can cause significantly elevated metals concentrations in groundwater samples.

No VOCs were detected in the East Side groundwater sample. Arsenic was detected in excess of its 1×10^{-6} carcinogenic risk screening level, but not its 1×10^{-4} carcinogenic risk screening level. Of the noncarcinogenic metals detected in the East Side groundwater sample, only manganese individually exceeds its HQ of 1.0. The cumulative HQ for all noncarcinogenic COCs is 3.106

when screened against Tap Water RSLs. However, the high turbidity of the East Side groundwater sample is likely a significant cause of elevated metals concentrations.

All COCs detected during this investigation were from subsurface sampling intervals. The grassed surface cover effectively limits potential receptor contact with subsurface soil, and limits migration of any subsurface soil contaminants offsite. In addition, the entire facility is secured with a locked gate, fence, and manned security, preventing unauthorized access to the sampling areas.

A 1956 geotechnical investigation identified groundwater flow direction at the GE site as southeast. An IGS well search identified five groundwater wells within one mile of the site in an east-southeast, southeast, or south direction. The IGS database lists owner name, well depth (60-140 feet), and completion date (1946-1967) and well use. One of these wells is listed as household use and active. The other four wells are listed as private use. No other information was identified during the well search or subsequent database search. It is unclear whether these, or other wells not identified during the well search, represent receptors for any groundwater risks associated with the GE site.

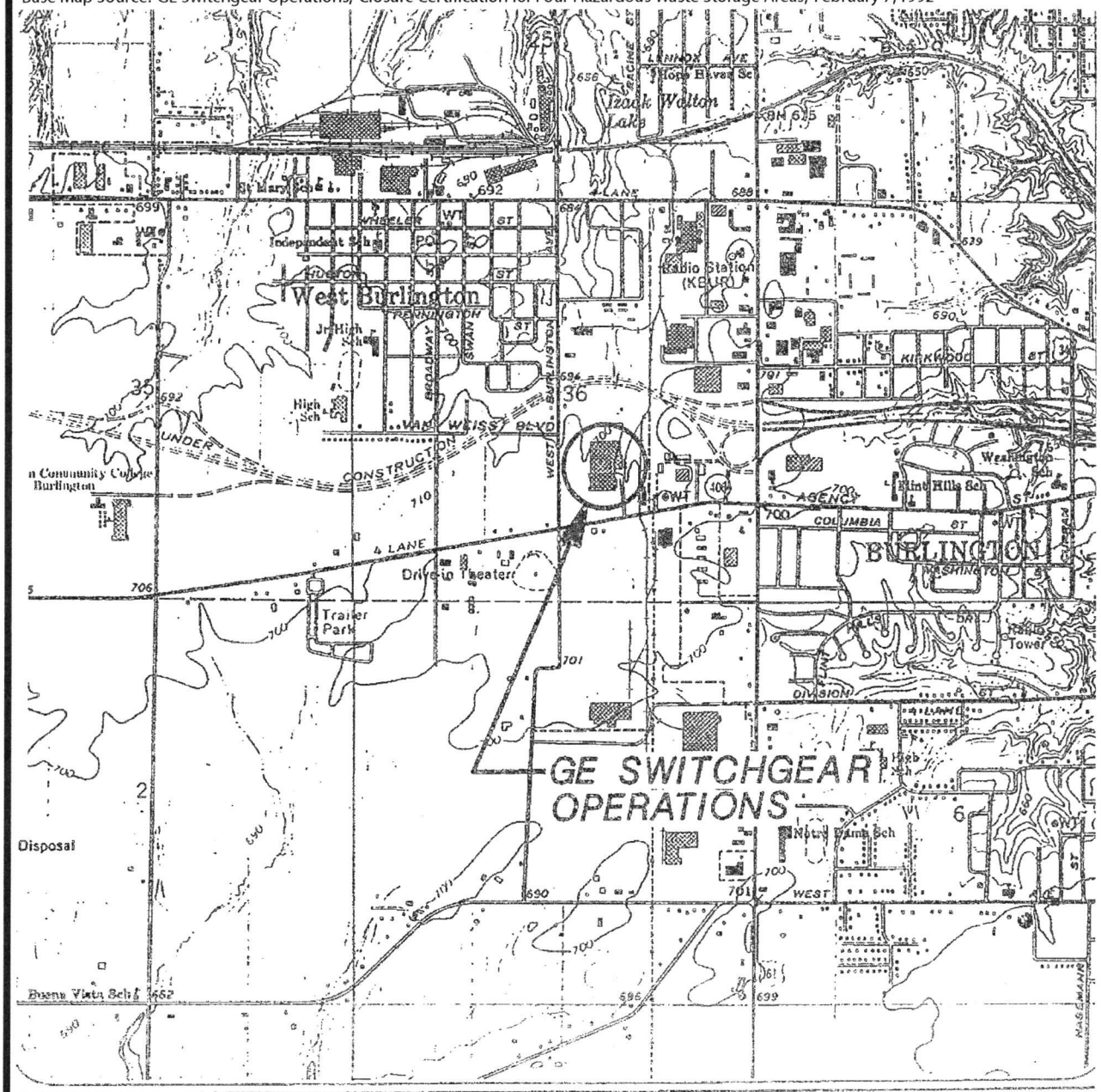
APPENDIX A

MAPS

Map 1: General Area Map

General Electric Company - Switchgear Operations, West Burlington, Iowa

Base Map Source: GE Switchgear Operations, Closure Certification for Four Hazardous Waste Storage Areas, February 7, 1992



MAP SOURCE: U.S.G.S. TOPOGRAPHIC QUADRANGLES. WEST BURLINGTON, IOWA.

SITE LOCATION: SEC. 36, T. 70N., R. 3W., DES MOINES COUNTY.

0 2000

SCALE IN FEET

GENERAL ELECTRIC COMPANY
GE SWITCHGEAR OPERATION
WEST BURLINGTON, IOWA

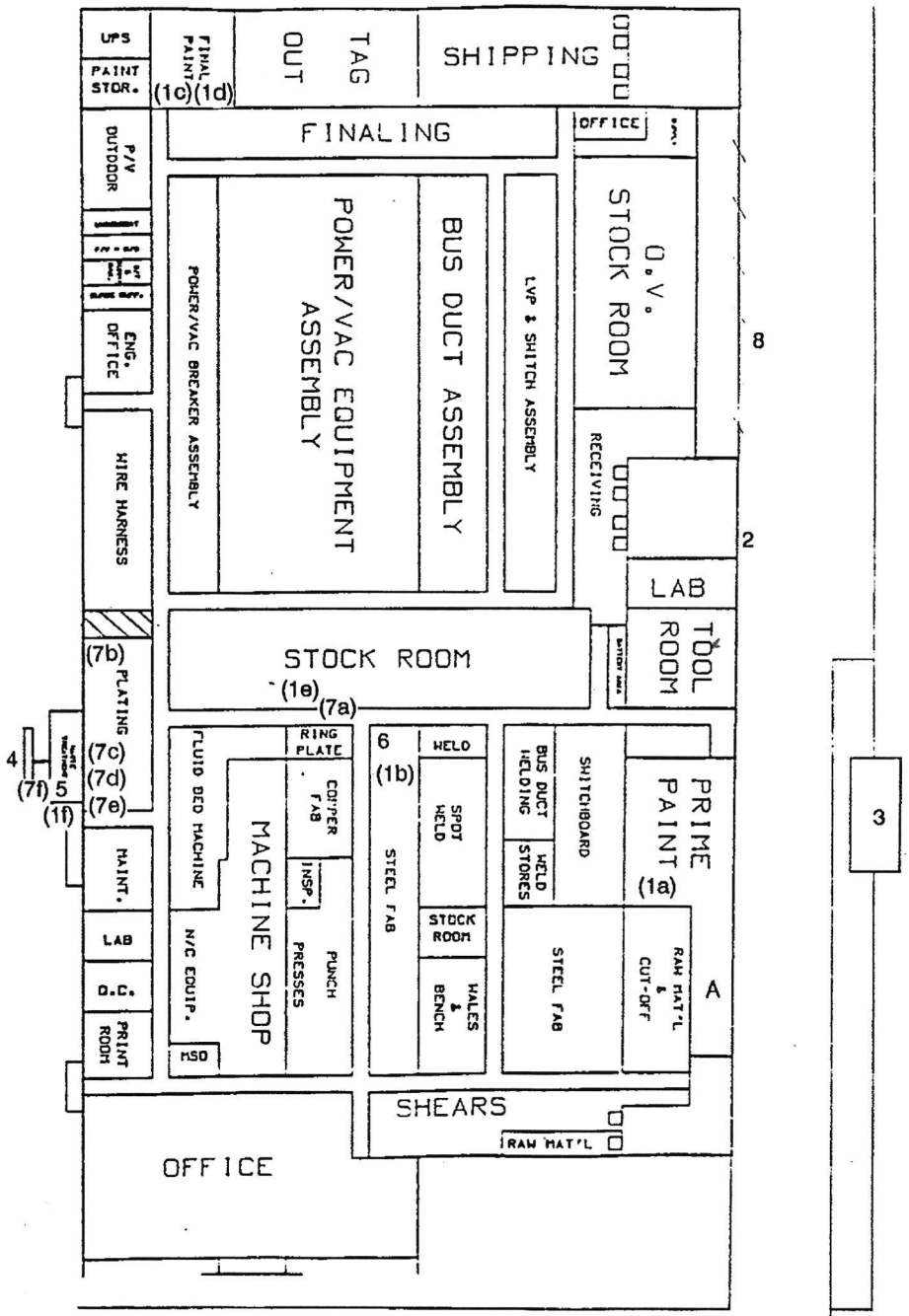
MONTGOMERY WATSON

SITE LOCATION MAP

Map 2: 1992 RFA SWMU and AOC Locations

General Electric Company - Switchgear Operations, West Burlington, Iowa

Base Map Source: GE Switchgear Operations, Final RCRA Facility Assessment, February 7, 1992



LEGEND

SWMUs

1	Satellite Accumulation Containers
2	Safety Storage Building
3	Hazardous Materials Storage Building
4	WWTP Underground Process Tanks
5	Thermal Dewatering Oven
6	1,1,1-Trichloroethane Degreaser Still
7	Wet Scrubbers
8	Hazardous Waste Storage Racks

AOCs

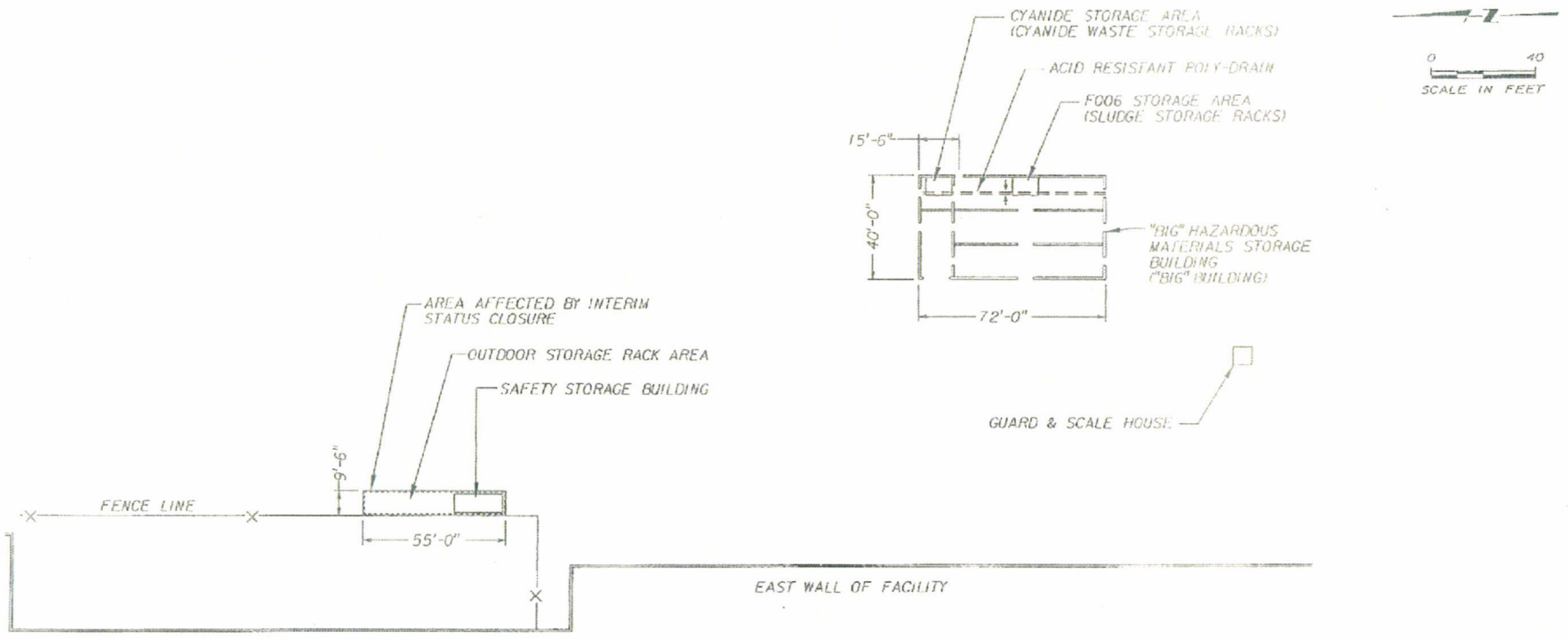
A	E-Coat Dip Tank
B	Honey Creek Storm Sewer Drainage (See Figure 5)

LOCATION OF SWMUs AND AOCs

Site: General Electric Company

Source: General Electric Company

Metcalf & Eddy, Inc



GENERAL ELECTRIC COMPANY
GE SWITCHGEAR OPERATION
WEST BURLINGTON, IOWA

SITE PLAN

MONTGOMERY WATSON

Base Map Source: GE Switchgear Operations, Closure Certification for Four Hazardous Waste Storage Areas, February 7, 1992

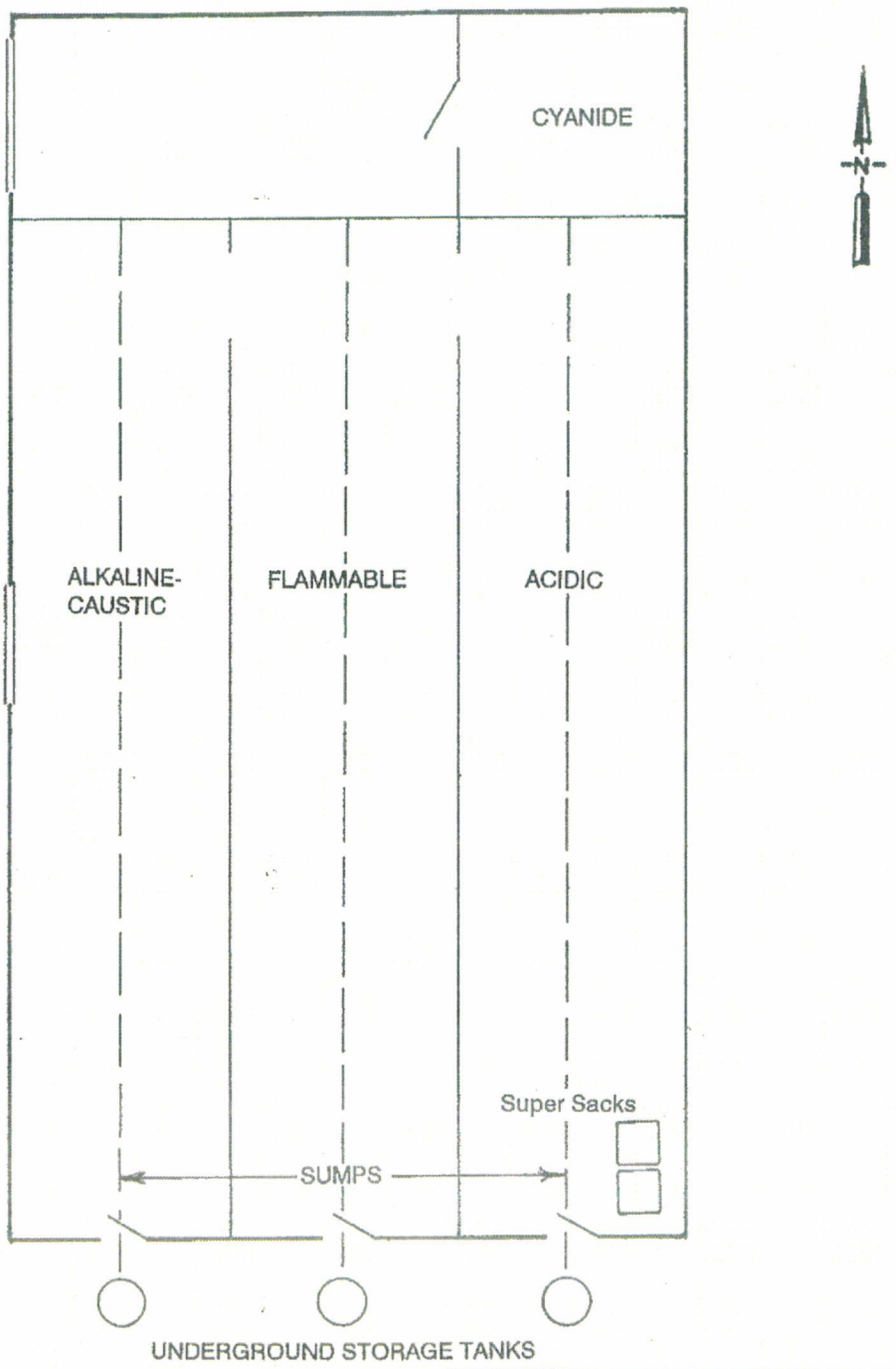
Map 3: Closed Hazardous Waste Storage Locations

General Electric Company - Switchgear Operations, West Burlington, Iowa

Map 4: Hazardous Waste Storage Building Layout

General Electric Company - Switchgear Operations, West Burlington, Iowa

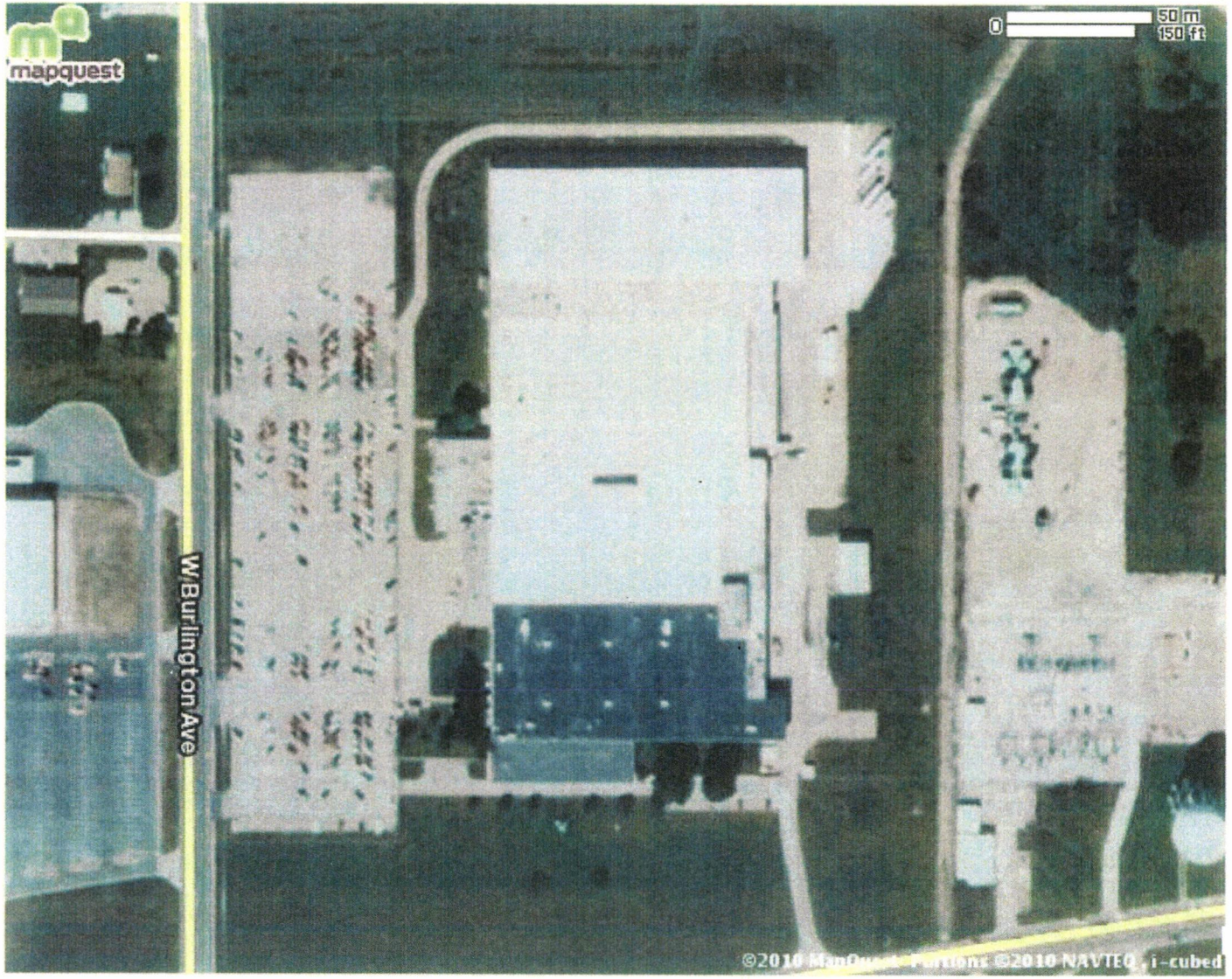
Base Map Source: GE Switchgear Operations, Final RCRA Facility Assessment, February 7, 1992



PLAN VIEW - HAZARDOUS MATERIALS STORAGE BUILDING

Site: General Electric Company

Metcalf & Eddy, Inc



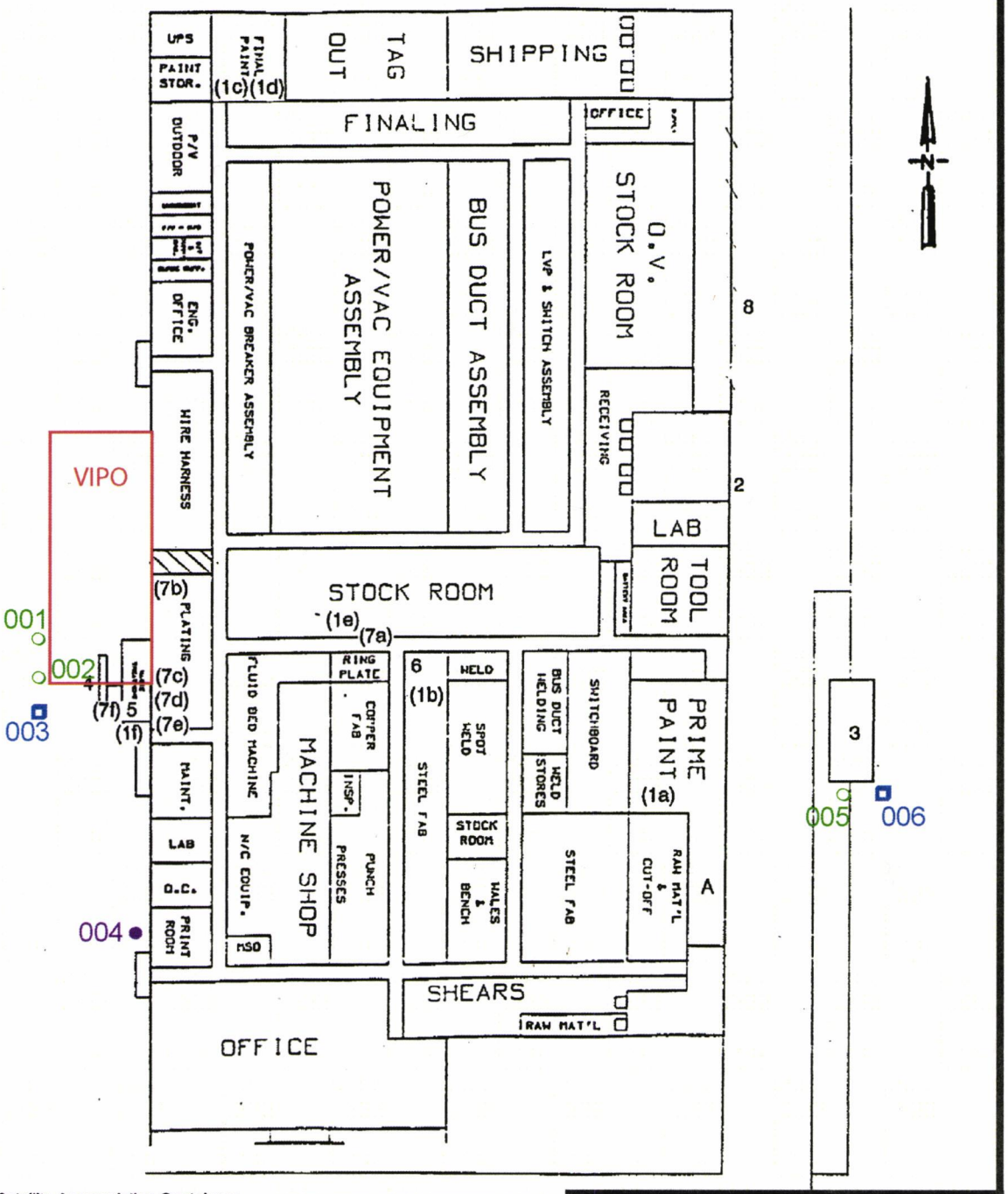
Map 5: Aerial Photograph

General Electric Company - Switchgear Operations, West Burlington, Iowa

Map 6: 2010 Sampling Locations

General Electric Company - Switchgear Operations, West Burlington, Iowa

Base Map Source: GE Switchgear Operations, Final RCRA Facility Assessment, February 7, 1992



LEGEND

SWMUs

1	Satellite Accumulation Containers
2	Safety Storage Building
3	Hazardous Materials Storage Building
4	WWTP Underground Process Tanks
5	Thermal Dewatering Oven
6	1,1,1-Trichloroethane Degreaser Still
7	Wet Scrubbers
8	Hazardous Waste Storage Racks

AOCs

A	E-Coat Dip Tank
B	Honey Creek Storm Sewer Drainage (See Figure 5)

Legend

- 2010 Subsurface Soil
- 2010 Subsurface Soil & Groundwater
- 2010 Groundwater

001 = Sampling Location 001

Metcalf & Eddy, Inc

APPENDIX B

TELEPHONE CONVERSATION RECORD

Telephone Conversation Record – General Electric Switchgear

Note: The site is still owned and operated by GE, as listed on the Des Moines County Assessor's webpage (www.co.des-moines.ia.us/assessor/AssessorHome.asp). File material lists the contact as Jill Gassman, EHS Manager at 319-753-8508.

- Wednesday, November 17, 2010; 1129. I called Ms. Gassman's number (listed above) and left a message. Ms. Gassman returned my call at 1220. I explained who I am, what the EPA Task Order is, why we want to sample at the site, where I want to sample, and the planned date of December 8, 2010. Ms. Gassman explained that she has been with GE for approximately 3.5 years, and was not aware of the history of the two areas (former wastewater treatment USTs and hazardous waste storage building) where the sampling focus is. I briefly explained the history and the data gaps that exist (e.g., no groundwater data, no soil or groundwater data near the hazardous waste storage building sumps, etc.). She explained that she would have to run the sampling request by corporate personnel, and asked if I could e-mail relevant file information and sampling plan. I e-mailed a narrative briefly describing the history and sampling rationale. I also e-mailed the 1992 RFA and the Sampling Locations map from my Sampling and Analysis Plan.

- Wednesday, November 17, 2010; 1355. I received an e-mail from Ms. Gassman indicating that the e-mailed information had been received and that she would forward it to corporate management. She stated that she would let me know what corporate personnel have to say.

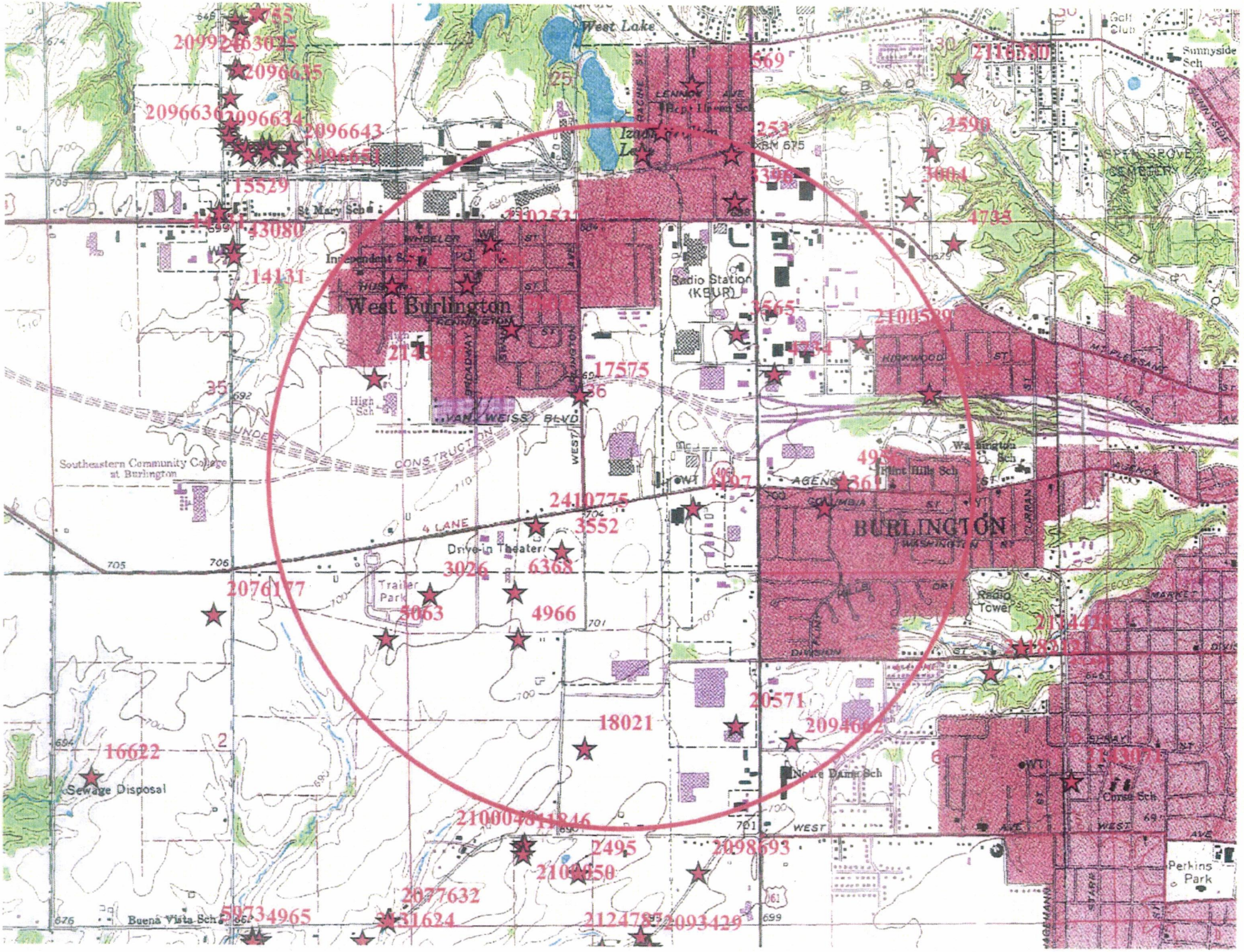
- Monday, November 22, 2010; 1324. I received a teleconference request from Joel Robinson with GE for a call on Wednesday, November 24, 2010. Accepted the invitation.

- Wednesday, November 24, 2010; 0830. Teleconference with Mr. Robinson (corporate, head of remediation/CERCLA, property matters), Mr. Joe Passman, and Ms. Gassman. I explained who I am, what the project entails, why we wanted to sample, and where. Mr. Robinson explained that he had two concerns: 1) the investigation is based on dated information. He understands why we want to sample (primarily to close data gaps), but knows that if anything is found, GE will be required to address it. He will need a "paper trail" from EPA documenting the sampling request. 2) GE has recently made it known that they are considering closing the facility. Decision will not be made until some time in December. Mr. Robinson is concerned that EPA sampling/investigation will raise a lot of questions or unnecessary concerns for those waiting for the decision. I told Mr. Robinson that I understood his concerns, and would pass his concerns and contact information along to the EPA Task Order manager. He left his telephone number (412-319-7000) and will look forward to the call.

- Wednesday, November 24, 2010; 0916. Sent e-mail to Cynthia Hutchison (EPA Task Order manager) detailing the teleconference call and asking her to touch base with Mr. Robinson.

APPENDIX C

WELL SEARCH RESULTS, ONE-MILE RADIUS


West Lake
Izaak Walton Lake
Sunnyside Sch
Golf Club
Aspen Grove Cemetery
St Mary Sch
Independent St
Wheeler
West Burlington
Radio Station (KBUR)
Hawkwood St
Mt Pleasant
Lucas
Broadway
Kenrick
Van Weiss Blvd
High Sch
West
Under Construction
Southeastern Community College at Burlington
4 Lane
Drive-In Theater
Trailer Park
Sewage Disposal
Buena Vista Sch
Agency
Columbia St
Mint Mills Sch
Washington Sch
Burlington
Washington St
Radio Tower
Market
Division St
Notre Dame Sch
Corse Sch
Perkins Park
West Ave
Main
Jefferson
Carroll
Agnew
Starr
Dixie
Kirkwood
Wt
Ore
Bm 675
25
30
35
2
6
8
2099263025
2096635
2096636
2096634
2096643
2096651
15529
43080
14131
2102537
17575
2410775
3552
4197
3026
6368
2076177
5063
4966
16622
18021
20571
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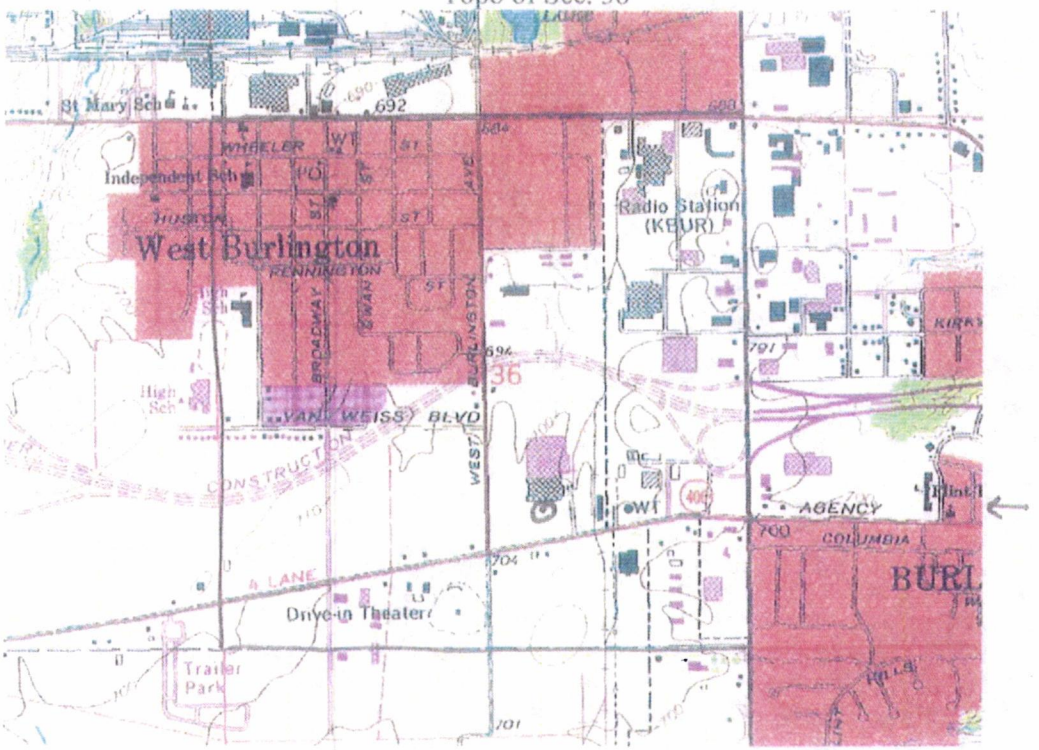
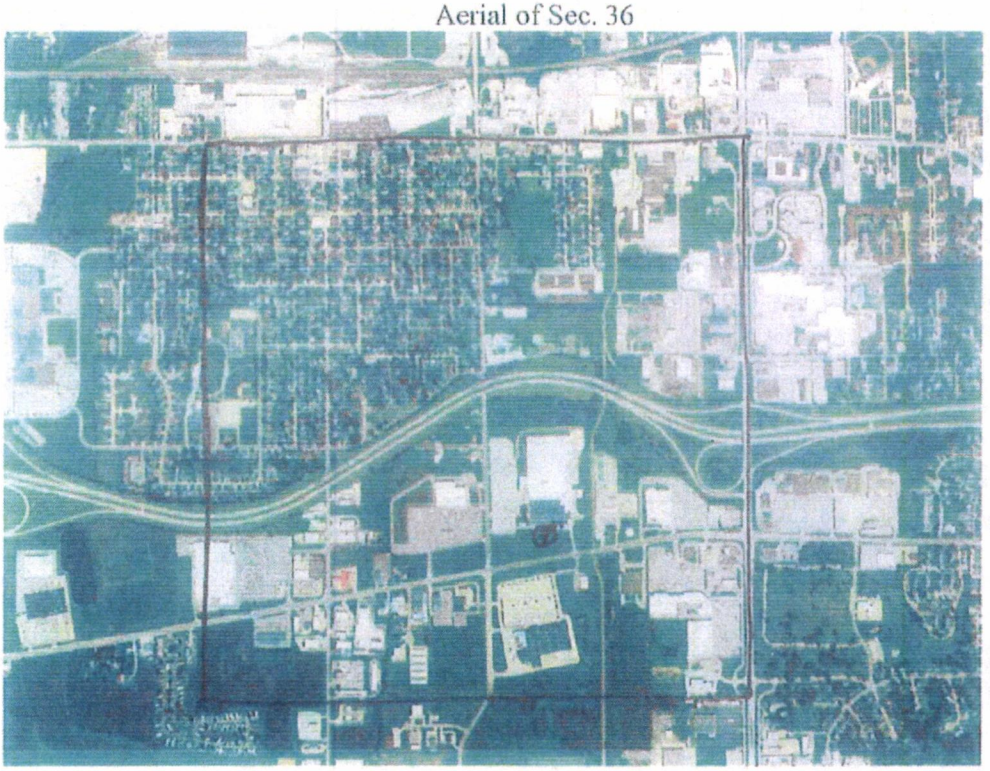
11846
2495
2098693
2100850
2077632
31624
5734965
2124787
2093429
2116330
2590
3004
4735
3565
2100539
1334
4955
3611
2114078
2114071

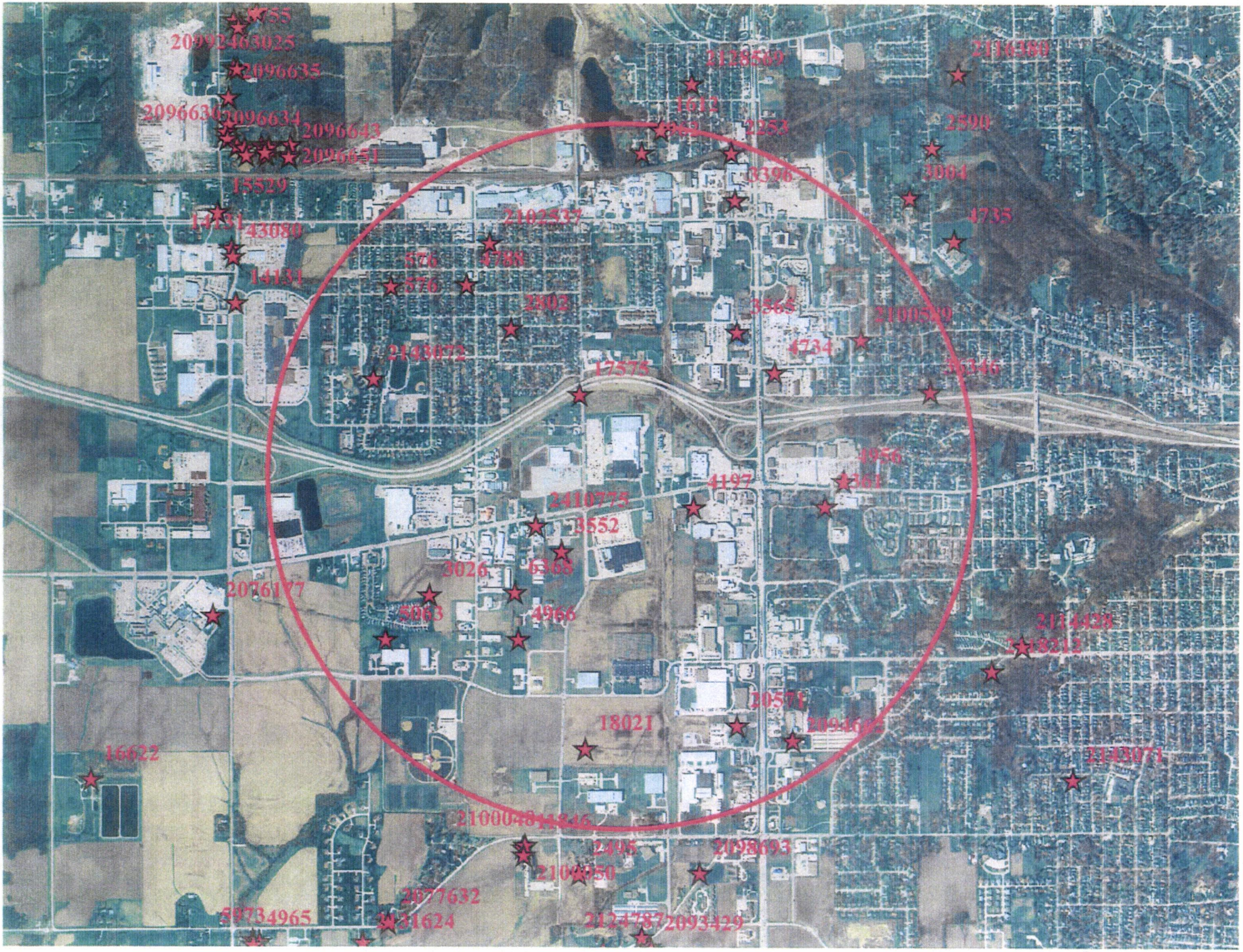
General Electric, 510 E. Agency Rd., West Burlington, IA
Des Moines County. T70N, R3W, Sec 36, SE ¼ .

Topo of Sec. 36



Aerial of Sec. 36

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43080
14131
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576
4788
576
2802
2143072
12575
2128569
1612
2253
3396
2116380
2590
3004
4735
3565
2100509
4734
4956
4197
361
2410775
3552
3026
6368
2076177
5063
4966
2114428
18212
20571
18021
2094693
16622
2143071
2100048
2495
2098693
2100950
2077632
59734965
2131624
2124787
2093429

General Electric

OBJECTID	MapID	WellID	ID_SRC_FLD	DATA	WELL_TYPE	LOCATION	COUNTY
221036	221036	576	wnumber	GEOL	IGS well database	T. 70N., R. 3W., Sec. 35, NE, NE, SE, SE	Des Moines
221041	221041	576	Wnumber	PUB	Public wells	T. 70N., R. 3W., Sec. 34, NE, NE, SE, SE	Des Moines
221093	221093	2143072	wellnmbr	PWTS	Private well tracking system	T. 70 N., R. 3W., Sec. 35, NE, SW, NE, SE, NE	Des Moines
221129	221129	2102537	wellnmbr	PWTS	Private well tracking system	T. 70 N., R. 3W., Sec. 36, NW, NE, NW, SE, NW	Des Moines
221131	221131	4788	wnumber	GEOL	IGS well database	T. 70N., R. 3W., Sec. 36, NW, NW, SE, NW	Des Moines
221206	221206	2802	wnumber	GEOL	IGS well database	T. 70N., R. 3W., Sec. 36, NW, SE, NW, NW	Des Moines
221209	221209	4962	wnumber	GEOL	IGS well database	T. 70N., R. 3W., Sec. 25, SE, SW, NE, SW	Des Moines
221212	221212	1612	wnumber	GEOL	IGS well database	T. 70N., R. 3W., Sec. 25, SE, SW, NW, NW	Des Moines
221277	221277	5063	wnumber	GEOL	IGS well database	T. 69N., R. 3W., Sec. 2, NE, NE, NE, NE	Des Moines
221293	221293	2253	wnumber	GEOL	IGS well database	T. 70N., R. 3W., Sec. 25, SE, SE, NE	Des Moines
221294	221294	3026	wnumber	GEOL	IGS well database	T. 69N., R. 3W., Sec. 1, SW, SW, NW, SW	Des Moines
221298	221298	17575	wnumber	GEOL	IGS well database	T. 70N., R. 3W., Sec. 36	Des Moines
221323	221323	3396	wnumber	GEOL	IGS well database	T. 70N., R. 3W., Sec. 25, SE, SE, NE	Des Moines
221351	221351	2410775	tinwsf_is_nun	SDWI	SDWIS well	T70N, R3W, Sec. 36, SW	Des Moines
221374	221374	6368	wnumber	GEOL	IGS well database	T. 69N., R. 3W., Sec. 1, NW, NE, NW	Des Moines
221381	221381	3552	wnumber	GEOL	IGS well database	T. 70N., R. 3W., Sec. 36, SW, SE, NE, SW	Des Moines
221388	221388	4966	wnumber	GEOL	IGS well database	T. 69N., R. 3W., Sec. 1, NW, NE, NW, NW	Des Moines
221397	221397	3565	wnumber	GEOL	IGS well database	T. 70N., R. 3W., Sec. 36, NE, NE, SE, NE	Des Moines
221448	221448	4734	wnumber	GEOL	IGS well database	T. 70N., R. 2W., Sec. 31, NW, SW, SW, NW	Des Moines
221473	221473	4197	wnumber	GEOL	IGS well database	T. 70N., R. 3W., Sec. 36, SE, SE, NW, NW	Des Moines
221527	221527	2100589	wellnmbr	PWTS	Private well tracking system	T. 70 N., R. 2W., Sec. 31, NW, NE, SE, SE, NE	Des Moines
221534	221534	18021	wnumber	GEOL	IGS well database	T. 69N., R. 3W., Sec. 1	Des Moines
221593	221593	2361	wnumber	GEOL	IGS well database	T. 70N., R. 2W., Sec. 31, SW, NW, SE, NW	Des Moines
221607	221607	4956	wnumber	GEOL	IGS well database	T. 70N., R. 2W., Sec. 31, SW	Des Moines
221631	221631	36346	wnumber	GEOL	IGS well database	T. 70N., R. 2W., Sec. 31	Des Moines
221681	221681	20571	wnumber	GEOL	IGS well database	T. 69N., R. 3W., Sec. 1, NE, SE, SE	Des Moines
221797	221797	2094662	wellnmbr	PWTS	Private well tracking system	T. 69 N., R. 2W., Sec. 6, NW, SE, SE, SW, SW	Des Moines

EST_LOC_AC	DEPTH	C_P_DATE	OWNER_NAME	OTHER_INFO	XCOORD
Meas. +/- 70 m.	1101	01/01/1938	West Burlington, City Of	Well type: Municipal	655062.74000000000
Meas. +/- 70 m.	1101	01/01/1938	West Burlington, City Of	Local name: West Burlington #3; Status: Inactive	655062.74000000000
nom. +/- 25m.	0		Eggar, Jeff	Status: Permitted; Well use: Heat pump	654984.44492400000
nom. +/- 25m.	0			Status: Retired; Well use: Heat pump	655513.26651100000
Calc. +/- 70 m.	72	08/24/1950	Luers, E. H.	Bedrock depth: 38; Well type: Private	655408.89000000000
Calc. +/- 70 m.	115	12/01/1946	White, Mrs.	Bedrock depth: 30; Well type: Private	655611.17000000000
Calc. +/- 70 m.	65	04/19/1951	Houtz	Bedrock depth: 20; Well type: Private	656206.36000000000
Calc. +/- 70 m.	100	01/01/1942	Rohleder, Julius	Bedrock depth: 20; Well type: Private	656293.53000000000
Calc. +/- 70 m.	122	08/11/1951	Vanweis, Bob	Bedrock depth: 36; Well type: Private	655042.00000000000
Calc. +/- 140 m.	65	03/14/1946	Engle, Harold	Bedrock depth: 20; Well type: Private	656615.36000000000
Calc. +/- 70 m.	61	06/12/1947	Gilland, Lyle	Bedrock depth: 25; Well type: Private	655241.94000000000
Calc. +/- 1140 m	100	01/01/1965	Gladman Garden Center	Bedrock depth: 35; Well type: Private	655924.86000000000
Calc. +/- 140 m.	90	08/11/1948	Hollenbeck, Harry	Bedrock depth: 15; Well type: Private	656632.00000000000
+/- 560 m.	unkn		Burlington Drive In Theater	Well # 1 ( ); PWSID: 2909847; Status: active	655728.00000000000
Calc. +/- 140 m.	157	01/14/1954	Leffler, John	Well type: Private	655631.50000000000
Calc. +/- 70 m.	75	02/12/1949	Ingherm, Al	Bedrock depth: 35; Well type: Private	655844.31000000000
Calc. +/- 70 m.	165	05/26/1951	Leffler, John	Bedrock depth: 40; Well type: Private	655648.13000000000
Calc. +/- 70 m.	125	12/24/1948	K.B.U.R.	Bedrock depth: 25; Well type: Other	656642.44000000000
Calc. +/- 70 m.	90	10/20/1950	Romrey, Glen	Bedrock depth: 35; Well type: Private	656815.76000000000
Calc. +/- 70 m.	80	03/09/1950	Sinn, Harold	Bedrock depth: 64; Well type: Private	656446.69000000000
nom. +/- 25m.	100	01/01/1950	Kerns, Naomi	Status: Active; Well use: Household	657210.02260600000
Calc. +/- 1140 m	60	06/19/1965	H-Q Truck Lines	Bedrock depth: 30; Well type: Private	655954.37000000000
Calc. +/- 70 m.	80	05/13/1946	Wery, Allen	Bedrock depth: 25; Well type: Private	657048.56000000000
Calc. +/- 570 m.	80	06/07/1951	Ashby, John	Bedrock depth: 25; Well type: Private	657132.62000000000
Calc. +/- 1140 m	185	01/01/1994	Flint Hills Golf Course	Well type: Unknown	657529.87000000000
Calc. +/- 140 m.	140	08/01/1967	Crabb, Robert	Bedrock depth: 20; Well type: Private	656647.50000000000
nom. +/- 25m.	110	01/01/1950	Diewold, Tom	Status: Active; Well use: Household	656903.12790400000

YCOORD	HLINK
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4520352.00993000000	http://programs.iowadnr.gov/pwts/ViewReport.aspx?parameters=vchWellNmbr%5ct2143072&reportName=WellPrintout
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4521177.25000000000	http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=3396
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4519887.33000000000	http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=4956
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DISPERSE	BEST_REC	PUB_ACCESS	PRIV_ACCES
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APPENDIX D

GLOBAL POSITIONING SYSTEM DATA

```
Export Version 4.20  4.20 Started.
Northing or Easting coordinate requested for a coordinate system that can't
calculate these values. Null values will be used.
Using Export Setup: Configurable ASCII
The following files in S:\GPS Pathfinder Data\John Dixon - 157916 will be exported:
    08DEC2010.cor
    120610 BF SITE.cor
    120710.cor
    06DEC2010.cor

Reading file 08DEC2010.cor
9 position(s) read.
A total of 5 feature(s) read or created.
  5 point feature(s) read.
File 08DEC2010.cor read successfully

Reading file 120610 BF SITE.cor
8 position(s) read.
A total of 4 feature(s) read or created.
  4 point feature(s) read.
File 120610 BF SITE.cor read successfully

Reading file 120710.cor
8 position(s) read.
A total of 3 feature(s) read or created.
  3 point feature(s) read.
File 120710.cor read successfully

Reading file 06DEC2010.cor
11 position(s) read.
A total of 5 feature(s) read or created.
  5 point feature(s) read.
File 06DEC2010.cor read successfully

4 input file(s) read.
36 position(s) read.
A total of 17 feature(s) read or created.
  17 point feature(s) read.
17 feature(s) exported.
4 output file(s) written to S:\GPS Pathfinder Data\John Dixon - 157916\Export
    s:\gps pathfinder data\john dixon - 157916\export\08dec2010\point_generic.xls
    s:\gps pathfinder data\john dixon - 157916\export\120610 bf
site\point_generic.xls
    s:\gps pathfinder data\john dixon - 157916\export\120710\point_generic.xls
    s:\gps pathfinder data\john dixon - 157916\export\06dec2010\point_generic.xls

The file S:\GPS Pathfinder Data\John Dixon - 157916\Export\08DEC2010.inf contains
information on the settings used.

The file C:\Documents and Settings\All Users\Application Data\Trimble\GPS Pathfinder
Office\Config\\expfiles.txt contains a list of the files created.
```

Setup Used:	Configurable ASCII
Export Format:	Configurable ASCII
Data Type:	Features
Feature Selection:	Export All Features
Not In Feature Positions:	Not Used
Export Notes:	No
Export Velocity Records:	No
Export Sensor Records:	No
File Option:	One File Set Per Feature
Templates:	Export1
File Structure:	DOS
Export Menu Attribute As:	Attribute Value
Generated Attributes:	Max PDOP
	Max HDOP
	Corr Type
	Rcvr Type
	GPS Date
	GPS Time
	Update Status
	GPS Height
	Vert Prec
	Horz Prec
	Std Dev
	Latitude
	Longitude
	Northing
	Easting
	Point_ID
	GPS Length
	GPS 3DLength
	Avg Vert Prec
	Avg Horz Prec
	Worst Vert Prec
	Worst Horz Prec
	Line_ID
	GPS Area
	GPS Perimeter
	GPS 3DPerimeter
	Avg Vert Prec
	Avg Horz Prec
	Worst Vert Prec
	Worst Horz Prec
	Area_ID
Position Filter Details:	
Filter By:	GPS Criteria
Maximum PDOP:	Any
Maximum HDOP:	Any
Min Number Of SVs:	2D (3 or more SVs)
Uncorrected:	Yes
P(Y) Code:	Yes
Real-time SBAS:	Yes
Real-time Code:	Yes
Postprocessed Code:	Yes
Real-time Carrier Float:	Yes
Postprocessed Carrier Float:	Yes
RTK Fixed:	Yes
Postprocessed Carrier Fixed:	Yes
Non-GPS:	Yes
Coordinate System:	Lat/Long
Datum:	WGS 1984
Altitude Units:	Feet
Altitude Reference:	MSL
Geoid Model:	DMA 10x10 (Global)

```
Include Altitude:       No
Distance Units:         Feet
Area Units:             Square Feet
Velocity Units:         Miles Per Hour
Precision Units:        Feet
Lat/Long Format:        DDD.dddddd
Quadrant:               +/-
Lat/Long DP:            9
Altitude DP:            3
Distance DP:            3
Area DP:                3

Data Dictionary
---------------
Point_generic - Point Feature
    Comment - String, Length = 32
    Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Corr Type - String, Length = 36
    Rcvr Type - String, Length = 36
    GPS Date - Date
    GPS Time - Time
    Update Status - String, Length = 36
    GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
    Latitude - String, Length = 36
    Longitude - String, Length = 36
    Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
Line_generic - Line Feature
    Comment - String, Length = 32
    Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Corr Type - String, Length = 36
    Rcvr Type - String, Length = 36
    GPS Date - Date
    GPS Time - Time
    Update Status - String, Length = 36
    GPS Length - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    GPS 3DLength - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Avg Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Avg Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Worst Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Worst Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Line_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
Area_generic - Area Feature
    Comment - String, Length = 32
    Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Corr Type - String, Length = 36
    Rcvr Type - String, Length = 36
    GPS Date - Date
    GPS Time - Time
    Update Status - String, Length = 36
    GPS Area - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    GPS Perimeter - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    GPS 3DPerimeter - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Avg Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Avg Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Worst Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Worst Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Area_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
```

Latitude	Longitude	Northing	Easting	ID	FeatureName	HAE	MSL	Comment	Max PDOP	Max HDOP	Corr Type	Rcvr Type
40.81633407	-91.14983055			1	Point_generic	592.946	701.59	Loc 002	5.9	1.8	Postprocessed C	GeoXT 2005
40.81637126	-91.14982936			2	Point_generic	594.282	702.927	Loc 001	5.9	1.8	Postprocessed C	GeoXT 2005
40.8162925	-91.14982668			3	Point_generic	594.153	702.798	Loc 003	5.9	1.8	Postprocessed C	GeoXT 2005
40.8160094	-91.14760784			4	Point_generic	594.388	703.038	Loc 005	3.2	1.5	Postprocessed C	GeoXT 2005
40.81601051	-91.14753934			5	Point_generic	587.315	695.965	Loc 006	3.2	1.5	Postprocessed C	GeoXT 2005

GPS Date	GPS Time	Update !	GPS Heigh	Vert Prec	Horz Prec	Std Dev	Latitude	Longitude	Point_ID	GPSTime
12/8/2010	05:04:05pm	New	701.59	14.2	4.6	1.37716	40.81633407	-91.14983055	1	12/08/10 10:04:22pm
12/8/2010	05:04:20pm	New	702.927	16	4.7		40.81637126	-91.14982936	2	12/08/10 10:04:35pm
12/8/2010	05:04:40pm	New	702.798	17.2	4.8		40.8162925	-91.14982668	3	12/08/10 10:04:55pm
12/8/2010	05:19:45pm	New	703.038	8.5	3.9	0.660693	40.8160094	-91.14760784	4	12/08/10 10:20:12pm
12/8/2010	05:20:35pm	New	695.965	9.4	4		40.81601051	-91.14753934	5	12/08/10 10:20:50pm

APPENDIX E

FIELD DOCUMENTATION

CONTENTS

PAGE	REFERENCE	DATE

"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

ALL-WEATHER
FIELD BOOK

Name John Dixon – BAH

Address 2300 Main St., Suite 900
Kansas City, MO 64108

Phone 816-448-3253

Project 1731 RCRA Site Sampling

This book is printed on "Rite in the Rain" All-Weather Writing Paper - A unique paper created to shed water and enhance the written image. It is widely used throughout the world for recording critical field data in all kinds of weather. For best results, use a pencil or an all-weather pen.

Specifications for this book:

Page Pattern		Cover Options	
Left Page	Right Page	Polydura Cover	Fabrikoid Cover
Columnar	1/4" Grid	Item No. 350	Item No. 350F

12/8/2010

Andy Riemer ERS Tech
Harold Smith maint leader

0800 - met w/ Jill Geissman + others @ site. Talked about what we're doing + where. walked the site + discussed locs.

Loc 005 - 20'S of former waste bldg 12'E of west wall

Loc 006 - 20'S of former waste bldg 12' W of East wall

0924 - done w/ Trip Blank coolers prepped - Starting on Loc 005

0943 - still working @ loc 005. core was pretty damp @ 8' 006 is going to 10' in plan

1006 - will decon all 005 SS sampling soil EQ + pull EB.

Note: Soil is clay. Homogenization issues w/ stiff clay. (medium stiff)

John P. Dorian 8 Dec 10

Photos - view of Loc 5 (right) & Loc 6, facing SE
Probing on Loc 006
- view of building & locs 005 & 006 (Probing on 006) facing N
- view of VOC sampling soil 0-3' @ Loc 006 (W)

Loc 006
hit water @ 16-19' ish
screen put to 22'
water up to 13.2' (pressure from river)
put Teflon Tubing to ~18'

Photo - view of GW sampling setup - facing SE

Time	flow rate	temp	pH	Cond	Turb	ORP	DO
1106	200	12.00	6.70	.741	71,000	-3	2.14
1108 - dry. Let set up turn on @ 1110							
1110 - back on							
1112 -	~200	11.70	6.85	0.724	800	-8	2.84
1115 - dry. Back on @ 1119							
1121 -	~200	11.62	6.93	.718	282	-8	4.19
1122 - dry	Back on @ 1125						
1127 -	~200	11.71	6.94	.714	254	-7	3.98
1129 - dry. Back on @ 1138							
Sample @ 1140							
~1.5 gallons purged.							

flow rate = mL/min ; temp = °C ; Cond = mS/cm ; Turb = NTU
ORP = mV ; DO = mg/L.
Total purge = ~1.5 gallons John D. Odin 8 Dec 2010

Note on Locs 005 & 006
I told Dusty & Harold that the reason for this sampling here was that there was sumps in this bldg from drawings we went inside - floor sumps have been filled w/ concrete.
They didn't know anything about sumps - must have been filled in and/or removed a long time ago.

Note: GW @ Loc 006 - formed small amt. of flocculent w/ addition of NAOH (like snow-globe inside substance) Same color as water - straw-colored

1224 - Drove screen down @ new Loc 004 - refusal @ 16' & no water. Heard. Like last one - probably have to "punch" water @ ~22' before it comes up?

Locs on W side. - lots of apparent utilities - San Sewer, Storm Sewer, Sprinkler system lines, etc. All over Also, new VIPU building built largely over

John D Odin 8 Dec 2010

where we wanted to put Locs 001 - 003.

Got maps from Dusty & Harold - San Sewer, Storm Sewer, sprinkler system, hydrants, etc All run through this area - & that's what's known from these maps. It's too congested to try it. moved Locs 001 & 002 & 003 west to get around congestion.

Directions:

001 26.5' W of W wall of VIPO
15' N of S wall

002 26.5' W of W wall of VIPO
2' N of S wall

003 26.5' W of W wall of VIPO
11'S

004 26' W of bldg 71'S of DOCKS

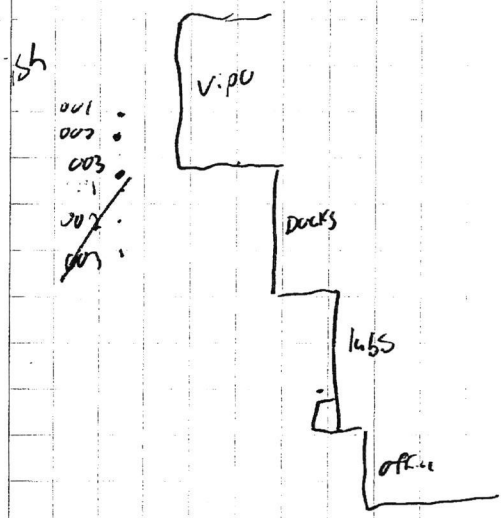
004's Location also in a congesting area. moved it further South & ~~East~~ West
The whole point of #004 is SW SE of former UST area (downgradient).

John D. Pitts 6 Dec 2010

Photo - locs 001 - 003 (far to near)
VIPO Bldg to the right.

Photo - view of corner area where 001-003 were planned. facing E.

Photo - view of Loc 004 location facing SE



John D. Pitts 8 Dec 2010

@ Loc 004 screen @ 18'

gw depth up to 14' because hit refusal here.

pre tubing in to 17'

Loc 004

Time	Flow	pH	Temp	Cond	Turb	ORP	DO
1314	– pump on						
1316	~200	7.26	12.78	1.10	>1,000	-52	0.06
1317	– Dry. Back on @ 1320						
1322	~200	7.21	11.81	1.08	>1,000	-76	0.03
1323	Dry. Back on @ 1326						
1327	~200	7.25	11.40	1.09	>800	-54	1.76
1327	– Dry. Back on @ 1332						
~~1335~~ 1334	~200	7.29	11.08	1.08	>800	-33	2.19
1335	– Dry Back on @ 1339						
1340	~200	7.31	10.68	1.09	667	-18	2.47

1341 – Dry. Will turn back on @ 1350 to start sampling

Total Purge ~ 0.5 gallons

John D. Dix 8 Dec 2010

1340 – done sampling 003 – floating flocculent in CW containers same color as water – straw colour

TOOK GW EB of 003 w/ NaOH from Cole.

1345 – CPS. GW OK except 004 – couldn't get (interference)

1435 – left Cit

1825 – arrive @ Cedar Rapids – place coolers for shipment.

1945 – drop off @ Fed Ex.

John D. Dix 8 Dec 2010

CONTENTS

PAGE	REFERENCE	DATE

"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

ALL-WEATHER
FIELD BOOK

Name Meredith Watson
Terranext, LLC
Address 11904 Grandview Rd
Grandview, MO 64030
Phone 913-894-4000

Project #1731 RCRA Site Sampling

This book is printed on "Rite in the Rain" All-Weather Writing Paper - A unique paper created to shed water and enhance the written image. It is widely used throughout the world for recording critical field data in all kinds of weather. For best results, use a pencil or an all-weather pen.

Specifications for this book

Page Pattern		Cover Options	
Left Page	Right Page	Polydura Cover	Fabrikoid Cover
Columnar	1/4" Grid	Item No. 350	Item No. 350F

12/8/10 GE MPW

0745 Loaded vehicles. Checked out of hotel. Mob to site. Stop for water.

0800 BAH (John Dixon), PSA (Kenny Doane), and Terrenext (Meredith Watson and Roy Ashlock) onsite. Sign in at main office and attend GE H&S meeting.

0830 Begin walk-thru of facility. Marking locations for sampling. Ray offsite for supplies. Not all on-site underground utilities are marked. GE will try to locate blueprints.

0900 Set up at Location #5 MPW Allowing PID and water quality meter to adjust to ambient (90°F) temperatures.

Location #5 (grass surface)

0-6.5 CH: brown CLAY, damp to moist, plastic, medium stiff

6.5-8 CH: grey, silty CLAY, moist, plastic, soft

Location #6 (grass surface)

0-6.5 CH: brn CLAY damp, plastic, medium stiff

6.5-11 CH: grey & orange mottled, silty CLAY damp, plastic, medium stiff

11-12 CL: brn, silty CLAY, moist, trace plastic, medium stiff

MPW

MPW GE 12/8/10

1120 PSA and Terrenext offsite for lunch.

1240 MPW PSA and Terrenext onsite to continue soil sampling on west side of facility. John continuing to collect groundwater sample from Location #6.

1210 Set up at #4 for groundwater sample.

1220 ~~Refusal at 18 ft at #4. Unable to collect groundwater sample.~~ MPW, 12/8/10 Locations #1, 2, and 3 relocated to the Northwest after reviewing utility maps provided by GE. Groundwater encountered at Location #4.

Location #3 (grass surface)

0-2.5 CL: brown CLAY, damp, non-plastic, stiff

2.5-11 CL: grey and orange mottled, silty CLAY, damp, trace plastic, medium stiff

11-12 CH: brown CLAY, moist, plastic, stiff

MPW

12/8/10 GE 12/8/10

Location #2 (grass surface)

0-2.5 CL: brown CLAY, damp, non-plastic, stiff

2.5-11 CH: grey and orange mottled, silty CLAY, moist, plastic, medium stiff

11-12 CL: brown CLAY, moist, trace plastic, stiff

Location #1 (grass surface)

0-2.5 CL: brown CLAY, damp, non-plastic, stiff

2.5-11 CH: grey and orange mottled, silty CLAY, moist, plastic, stiff

11-12 CL: brown CLAY, moist, trace plastic, stiff

1500 Soil sampling complete. Groundwater sampling at Locations #3 and #4 continuing.

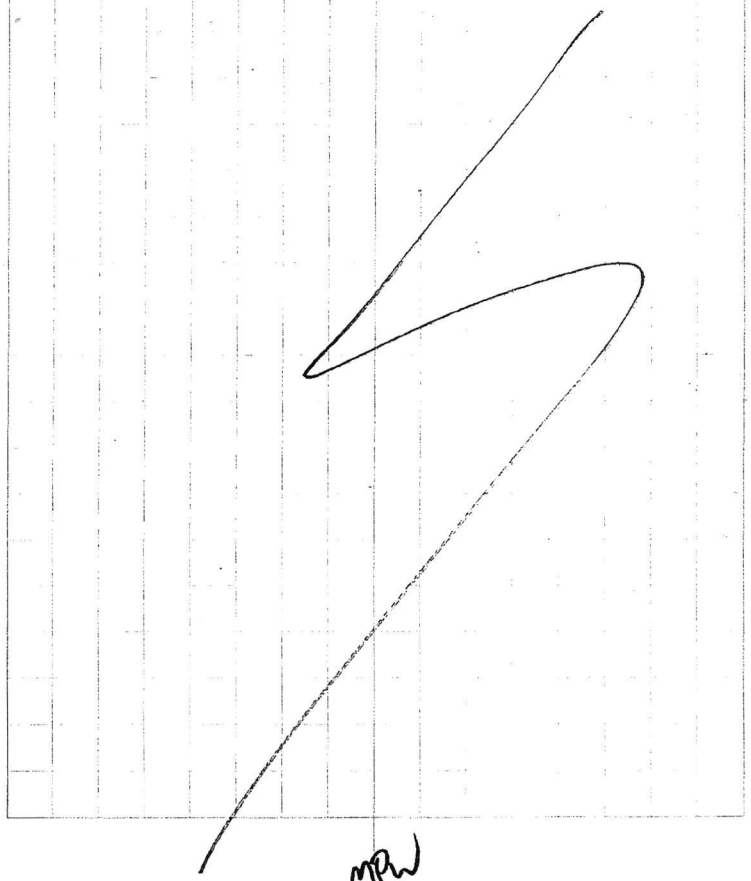
1600 Groundwater sampling complete. Collected equipment blank. Waste soils thin-spread onsite.

MPW

12/8/10 GE MPW

1630 Sign out at main office. Mob to Cedar Rapids. Check-in at hotel. Pack coolers for shipping. Mob to FedEx.

1900 Samples delivered to FedEx. Return to hotel.



MPW

CONTENTS

PAGE	REFERENCE	DATE

"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

ALL-WEATHER
FIELD BOOK

Name Roy Lee Ashlock JR / Terranext
Address 4050 E cotton center BLVD suite 73
PHX, AZ 85040
Phone 480-496-4100
Project #1731

This book is printed on "Rite in the Rain" All-Weather Writing Paper - A unique paper created to shed water and enhance the written image. It is widely used throughout the world for recording critical field data in all kinds of weather. For best results, use a pencil or an all-weather pen.

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Columnar	1/4" Grid	Item No. 350	Item No. 350F

Roy Ashlock

12-8-10
GE Switch Gear, Burlington IA

Depart Hotel @ 0745
Arrive onsite @ GE Switch Gear
@ Burlington, IA in visitor parking lot to check IN @ 0810
Sign In & Attend GE Switch Gear safety meeting
Drive to get Decon water @ 0830
Back onsite @ 0902
Unpack Horiba U-50 (2) &
Turn on to equilibrate
Calibrate Horiba using
Auto-Cal PH 4.0
conductivity 4.45 ms/cm
Turbidity 0.0
Lot no 0076-08
Expires 3/23/2012
Calibrate Horiba U-50
US4583X with auto-cal solution 0920
Calibrate Horiba U-50
V6215bX with auto solution 0924

Roy Ashlock

Roy Ashlock

Roy Ashlock
Terraflex

12-8-10 GE Switch Gear

Finish assisting with soil monitoring @ 1100

Offsite for Lunch 1115 to 1135

Assist with Soil Monitoring 1135 to 1344

1344 Begin Gw monitoring on Hole #3 TD 20 feet / Tubing set @ 18 feet

Begin pumping 1347 @ approx 250 mL a minute

Turn pump Down to @ 100 mL a minute

1353 250 mL min	1355 100 mL Min
12.90 °C	12.88°C
7.00 pH	7.01 pH
-224 orp mv	-204 orp mv
0.0 NTU	0.0 NTU
2.15 mg/L DO	7.64 mg/L DO
0.686 g/L TDS	0.676 g/L TDS
0.5 ppt	0.5 ppt

Roy Ashlock

GE Switch Gear

12-8-10

Roy Ashlock
Terraflex

1357 100 mL min	1400 100 mL min
13.56 °C	13.83 °C
7.01 pH	7.03 pH
-167 orp mv	-158 orp mv
1.04 ms/cm	1.03 ms/cm
763 NTU	701 NTU
5.76 mg/L DO	5.63 mg/L DO
0.665 g/L TDS	0.664 g/L TDS
0.5 ppt	0.5 ppt

1402 100 mL min	1404 100 mL min
13.91 °C	13.95 °C
7.01 pH	7.03 pH
-152 orp mv	-151 orp mv
1.04 ms/cm	1.04 ms/cm
800 NTU	783 NTU
5.22 mg/L DO	4.89 mg/L DO
0.661 g/L TDS	0.663 g/L TDS
0.5 ppt	0.5 ppt

Roy Ashlock

12-8-10 Roy Ashlock Terrasect

GE Switch Gear

1406 100 mL min	1408 100 mL min
14.25°C	14.13°C
7.02 pH	7.03 pH
-15.1 orp mv	-151 orp mv
1.03 ms/cm	1.03 ms/cm
800 NTV	794 NTV
4.25 mg/L DO	4.04 mg/L DO
0.659 g/L TDS	0.660 g/L TDS
0.5 ppt	0.5 ppt

1410 100 mL min	1412 100 mL min
14.39°C	14.45°C
7.04 pH	7.04 pH
-152 orp mv	-151 orp mv
1.03 ms/cm	1.03 ms/cm
694 NTV	640 NTV
3.71 mg/L DO	3.60 mg/L DO
0.658 g/L TDS	0.657 g/L TDS
0.5 ppt	0.5 ppt

Roy Ashlock

12-8-10 Roy Ashlock Terrasect

GE Switch Gear

Finish pumping @ 1413 / pumped approx 2 gallons of water

Finish helping soil monitoring

Finish helping collect water samples from probe # 4 @ 1545

Finish cleaning up & throw away trash 1614

Depart site 1635

Drive to Cedar Rapids Iowa

Arrive @ 1810

Check In @ hotel 1812

Prepare coolers for shipping 1835

Roy Ashlock

FedEx Express — US Airbill

FedEx Tracking Number: 8746 4439 1804

Form ID No. 0200 — Sender's Copy

1 From *Please print and press hard.*

Date 12/8/2010 Sender's FedEx Account Number 2468-0486-9

Sender's Name John D. Xun Phone (703) 473-8717

Company Booz Allen Hamilton

Address 2300 Main St. Suite 900 (Dept/Floor/Suite/Room)

City Kansas City State MO ZIP 64108

2 Your Internal Billing Reference First 24 characters will appear on invoice. B-09075-0149-2731-1000002

3 To

Recipient's Name Nicole Roblez Phone (913) 551-5130

Company US EPA Region 7 Laboratory

Address 300 Minnesota Avenue (We cannot deliver to P.O. boxes or P.O. ZIP codes.) Dept/Floor/Suite/Room

Address (Use this line for the HOLD location address or for continuation of your shipping address.)

City Kansas City State KS ZIP 66101

☐ HOLD Weekday — FedEx location address REQUIRED. NOT available for FedEx First Overnight.

☐ HOLD Saturday — FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

4a Express Package Service * To most locations. *Packages up to 150 lbs.*

☒ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

☐ FedEx First Overnight — Earliest next business morning delivery to select locations.*

☐ FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

4b Express Freight Service ** To most locations. *Packages over 150 lbs.*

☐ FedEx 1Day Freight — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected. FedEx 1Day Freight Booking No.

☐ FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

☐ FedEx Envelope* ☐ FedEx Pak* — Includes FedEx Small Pak and FedEx Large Pak. ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery — NOT available for FedEx Standard Overnight, FedEx Express Saver, or FedEx 3Day Freight.

☐ No Signature Required — Package may be left without obtaining a signature for delivery.

☐ Direct Signature — Someone at recipient's address may sign for delivery. *Fee applies.*

☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. *Fee applies.*

Does this shipment contain dangerous goods? One box must be checked.

☒ No ☐ Yes — As per attached Shipper's Declaration. ☐ Yes — Shipper's Declaration not required. ☐ Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box. ☐ Cargo Aircraft Only

7 Payment *Bill to:*

☒ Sender — Acct. No. in Section 1 will be billed. ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Enter FedEx Acct. No. or Credit Card No. below.

FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value†
3	____ lbs.	$ ____ .00

†Our liability is limited to $100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

606

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CEDAR RAPIDS, IA 52404

Location: CIDA
Device ID: CIDA-POS2
Employee: 426384
Transaction: 750945791S

PRIORITY OVERNIGHT 89.64
87644391804 146.50 lb (S)
799753317733 89.64
799753317744

Shipment subtotal: 89.64
Total Due: 89.64
FedEx Account: ****4869 89.64

DUPLICATE

M = Weight entered manually
S = Weight read from scale
T = Taxable item

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1.800.463.3339

December 8, 2010 7:39:45 PM

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
John D. Dixon	CHGE RCRA	08 / 12 / 2010	2 of 2

CONTENTS OF SHIPMENT

SAMPLE NUMBER	TYPE OF CONTAINERS: CUBITAINER	BOTTLE	BOTTLE	BOTTLE	VOA SET (2 VIALS EA)	SAMPLED MEDIA: water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										
SO13-108F13					1	X					
|											
|											
ASR SO13 completed. SDD 12/8/2010											

VSC 12/8/2010

ASR SDD

DESCRIPTION OF SHIPMENT

3 PIECE(S) CONSISTING OF _____ BOX(ES)

3 ICE CHEST(S). OTHER _____

MODE OF SHIPMENT

X COMMERCIAL CARRIER Fed-Ex

_____ COURIER

_____ SAMPLER CONVEYED

8746 4439 1804 (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
John D. Dixon [X] SEALED [ ] UNSEALED	12/8/2010	1945	[ ] SEALED [ ] UNSEALED	
RELINQUISHED BY [ ] SEALED [ ] UNSEALED	DATE	TIME	RECEIVED BY [ ] SEALED [ ] UNSEALED	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY [ ] SEALED [ ] UNSEALED	DATE	TIME	RECEIVED BY [ ] SEALED [ ] UNSEALED	REASON FOR CHANGE OF CUSTODY

*U.S. GPO: 2002-756-917/40053

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
John D. Dixon	CHGERCRA	08 / 12 / 2010	1 of 2

CONTENTS OF SHIPMENT

SAMPLE NUMBER	TYPE OF CONTAINERS: 1 Liter CUBITAINER	8 oz BOTTLE	BOTTLE	VOA SET (4 BOTTLES)	VOA SET (2 VIALS EA)	SAMPLED MEDIA: water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										
S013-1		1		1			X				
S013-2		1		3			X				
S013-3		1		1			X				
S013-4		1		1			X				
S013-5		1		1			X				
S013-6		1		1			X				
S013-7		1		1			X				
S013-8		1		1			X				
S013-9		1		1			X				
S013-9FD		1		1			X				
S013-11		1		1			X				
S013-12		1		1			X				
S013-13		1		1			X				
S013-14		1		1			X				
S013-15		1		1			X				
S013-15FD		1		1			X				
S013-17		1		1			X				
S013-18		1		1			X				
S013-101	2				1	X					
S013-101FD	2				1	X					
S013-103	2				3	X					
S013-104	2				1	X					
S013-105	2				1	X					
S013-106	2				1	X					

DESCRIPTION OF SHIPMENT

____ PIECE(S) CONSISTING OF ____ BOX(ES)

3 ICE CHEST(S); OTHER ____

MODE OF SHIPMENT

X COMMERCIAL CARRIER Fed Ex

____ COURIER

____ SAMPLER CONVEYED

8746 4439 1804 (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
John D Dixon ☒ SEALED ☐ UNSEALED	12/8/2010	1945	☐ SEALED ☐ UNSEALED	
RELINQUISHED BY ☐ SEALED ☐ UNSEALED	DATE	TIME	RECEIVED BY ☐ SEALED ☐ UNSEALED	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY ☐ SEALED ☐ UNSEALED	DATE	TIME	RECEIVED BY ☐ SEALED ☐ UNSEALED	REASON FOR CHANGE OF CUSTODY

*U.S. GPO: 2002-756-917/40053

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 108 **QC Code:** FB **Matrix:** Water **Tag ID:** 5013-108-FB

Project ID: CHGERCRA **Project Manager:** Cynthia Hutchison
Project Desc: GE - RCRA site sampling
City: West Burlington **State:** Iowa
Program: RCRA Corrective Action

Location Desc: Routine water VOA Trip Blank sample

Storet ID: _____ **External Sample Number:** GE-01-TB-001

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 12/8/2010 09:21
Longitude: ___ ___ ___ **End:** 12/8/2010 09:22

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
2 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS

Sample Comments:
(N/A)

Sample Collected By: JD/BAH

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 106 **QC Code:** __ **Matrix:** Water **Tag ID:** 5013-106-__

Project ID: CHGERCRA
Project Desc: GE - RCRA site sampling
City: West Burlington
Program: RCRA Corrective Action

Project Manager: Cynthia Hutchison
State: Iowa

Location Desc: Equipment Blank, groundwater

Storet ID: _____ **External Sample Number:** GE-02-EB-001

Expected Conc: (or Circle One: Low Medium High)

Latitude: ___ ___ ___
Longitude: ___ ___ ___

	Date	Time(24 hr)
Sample Collection: Start:	12/8/10	15:45
End:	12/8/10	15:50

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water
2 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS

Sample Comments:

(N/A)

Sample Collected By: JD/BAH

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 105 **QC Code:** __ **Matrix:** Water **Tag ID:** 5013-105-__

Project ID: CHGERCRA
Project Desc: GE - RCRA site sampling
City: West Burlington
Program: RCRA Corrective Action

Project Manager: Cynthia Hutchison
State: Iowa

Location Desc: Equipment Blank - Soil

Storet ID: _____ **External Sample Number:** GE-01-EB-001

Expected Conc: (or Circle One: Low Medium High)

Latitude: ___ ___ ___
Longitude: ___ ___ ___

	Date	Time(24 hr)
Sample Collection: Start:	12/8/2010	10:20
End:	12/8/2010	10:25

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180	Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14	Days	1 Cyanide, Total in Water
2 - 40mL VOA vial	4 Deg C, HCL to pH<2	14	Days	1 VOCs in Water by GC/MS

Sample Comments:

(N/A)

Sample Collected By: JD/BAH

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 104 **QC Code:** __ **Matrix:** Water **Tag ID:** 5013-104-__

Project ID: CHGERCRA **Project Manager:** Cynthia Hutchison
Project Desc: GE - RCRA site sampling
City: West Burlington **State:** Iowa
Program: RCRA Corrective Action

Location Desc: Loc 006, groundwater

Storet ID: _____ **External Sample Number:** GE-01-GW-006

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 12/8/2016 11:40
Longitude: ___ ___ ___ **End:** 12/8/2016 11:49

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180	Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14	Days	1 Cyanide, Total in Water
2 - 40mL VOA vial	4 Deg C, HCL to pH<2	14	Days	1 VOCs in Water by GC/MS

Sample Comments:

(N/A)

Sample Collected By: JD/BAH

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 103 **QC Code:** __ **Matrix:** Water **Tag ID:** 5013-103-__

Project ID: CHGERCRA
Project Desc: GE - RCRA site sampling
City: West Burlington
Program: RCRA Corrective Action

Project Manager: Cynthia Hutchison
State: Iowa

Location Desc: Loc 004, groundwater

Storet ID: _____ **External Sample Number:** GE-01-GW-004

Expected Conc: (or Circle One: Low Medium High)

Latitude: ___ ___ ___
Longitude: ___ ___ ___

	Date	Time(24 hr)
Sample Collection: Start:	12/8/2010	13:50
End:	12/8/2010	14:31

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water
2 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS

Sample Comments:

(N/A) + MS/MSD

Sample Collected By: JD/BAH

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** ~~102~~ 101 TDD 12/21/10 **QC Code:** FD **Matrix:** Water **Tag ID:** 5013-~~102~~ 101 FD TDD 12/21/10

Project ID: CHGERCRA
Project Desc: GE - RCRA site sampling
City: West Burlington
Program: RCRA Corrective Action

Project Manager: Cynthia Hutchison
State: Iowa

Location Desc: Loc 003, groundwater, duplicate

Storet ID: _____ **External Sample Number:** GE-02-GW-003

Expected Conc: (or Circle One: Low Medium High)

Latitude: ___ ___ ___
Longitude: ___ ___ ___

	Date	Time(24 hr)
Sample Collection: Start:	12/8/10	15:15
End:	12/8/10	15:40

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180 Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14 Days	1 Cyanide, Total in Water
2 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS

Sample Comments:
(N/A)

Sample Collected By: JD/BAH

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 101 **QC Code:** __ **Matrix:** Water **Tag ID:** 5013-101-__

Project ID: CHGERCRA
Project Desc: GE - RCRA site sampling
City: West Burlington
Program: RCRA Corrective Action

Project Manager: Cynthia Hutchison
State: Iowa

Location Desc: Loc 003, groundwater

Storet ID: _____ **External Sample Number:** GE-01-GW-003

Expected Conc: (or Circle One: Low Medium High)

Latitude: ___ ___ ___
Longitude: ___ ___ ___

	Date	Time(24 hr)
Sample Collection: Start:	12/8/10	15:15
End:	12/8/10	15:40

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
1 - 1 Liter Cubitainer	HNO3 to pH<2	180	Days	1 Metals in Water by ICP/MS
1 - 1 Liter Cubitainer	NaOH to pH >12	14	Days	1 Cyanide, Total in Water
2 - 40mL VOA vial	4 Deg C, HCL to pH<2	14	Days	1 VOCs in Water by GC/MS

Sample Comments:

(N/A)

Sample Collected By: JD/BAH

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 18 **QC Code:** __ **Matrix:** Solid **Tag ID:** 5013-18-__

Project ID: CHGERCRA **Project Manager:** Cynthia Hutchison
Project Desc: GE - RCRA site sampling
City: West Burlington **State:** Iowa
Program: RCRA Corrective Action

9-11

Location Desc: Loc 006, ~~9-10~~ feet bgs
MPW 12/8/10

Storet ID: _____ **External Sample Number:** GE-05-SL-006

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 12/8/10 10:45

Longitude: ___ ___ ___ **End:** 12/8/10 10:53

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
4 - 40mL VOA vials (soil VOA 5035)	4 Deg C, H2O + sodium bisulfate (in 2 vials)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28	Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: ~~JD/BAH~~ RA / Terranext

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 17 **QC Code:** __ **Matrix:** Solid **Tag ID:** 5013-17-__

Project ID: CHGERCRA **Project Manager:** Cynthia Hutchison
Project Desc: GE - RCRA site sampling
City: West Burlington **State:** Iowa
Program: RCRA Corrective Action

Location Desc: Loc 006, ~~7-8~~ 6-8 feet bgs

Storet ID: _____ MPW 12/8/10 **External Sample Number:** GE-04-SL-006

Expected Conc: (or Circle One: Low Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	12/8/10	10:36
Longitude: ___ ___ ___	**End:**	12/8/10	10:44

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vials (soil VOA 5035)	4 Deg C, H2O + sodium bisulfate (in 2 vials)	14 Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: ~~JD/BAH~~ MPW / Terra next

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** ~~16~~ 15 **QC Code:** FD **Matrix:** Solid **Tag ID:** 5013~~16~~ 15FD

Project ID: CHGERCRA **Project Manager:** Cynthia Hutchison
Project Desc: GE - RCRA site sampling
City: West Burlington **State:** Iowa
Program: RCRA Corrective Action

Location Desc: Loc 006, ~~4-5~~ 3-6 feet bgs, duplicate MPW 12/8/10

Storet ID: _____ **External Sample Number:** GE-03-SL-006

Expected Conc: (or Circle One: Low Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	12/8/10	10:21
Longitude: ___ ___ ___	**End:**	12/8/10	10:38

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vials (soil VOA 5035)	4 Deg C, H2O + sodium bisulfate (in 2 vials)	14 Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: ~~JD/BAH~~ RA / Terranext

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 15 **QC Code:** __ **Matrix:** Solid **Tag ID:** 5013-15-__

Project ID: CHGERCRA **Project Manager:** Cynthia Hutchison
Project Desc: GE - RCRA site sampling
City: West Burlington **State:** Iowa
Program: RCRA Corrective Action

Location Desc: Loc 006, ~~4-5~~ 3-6 feet bgs MPW 12/8/10

Storet ID: _____ **External Sample Number:** GE-02-SL-006

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 12/8/10 10:21

Longitude: ___ ___ ___ **End:** 12/8/10 10:38

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vials (soil VOA 5035)	4 Deg C, H2O + sodium bisulfate (in 2 vials)	14 Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: ~~JD/BAH~~ RA / Terranext

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 14 **QC Code:** __ **Matrix:** Solid **Tag ID:** 5013-14-__

Project ID: CHGERCRA **Project Manager:** Cynthia Hutchison
Project Desc: GE - RCRA site sampling
City: West Burlington **State:** Iowa
Program: RCRA Corrective Action

1-3

Location Desc: Loc 006, ~~1-2~~ feet bgs
MPW 12/8/10

Storet ID: _____ **External Sample Number:** GE-01-SL-006

Expected Conc: (or Circle One: Low Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	12/8/10	10:09
Longitude: ___ ___ ___	**End:**	12/8/10	10:20

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vials (soil VOA 5035)	4 Deg C, H2O + sodium bisulfate (in 2 vials)	14 Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: ~~JD/BAH~~ RA / Terranext

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 13 **QC Code:** __ **Matrix:** Solid **Tag ID:** 5013-13-__

Project ID: CHGERCRA **Project Manager:** Cynthia Hutchison
Project Desc: GE - RCRA site sampling
City: West Burlington **State:** Iowa
Program: RCRA Corrective Action

6-8

Location Desc: Loc 005, ~~7-8~~ feet bgs

MPW 12/8/10

Storet ID: _____ **External Sample Number:** GE-03-SL-005

Expected Conc: (or Circle One: Low Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	12/8/10	09:52
Longitude: ___ ___ ___	**End:**	12/8/10	10:01

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vials (soil VOA 5035)	4 Deg C, H2O + sodium bisulfate (in 2 vials)	14 Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: ~~JD/BAH~~ RA / Terranext

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 12 **QC Code:** __ **Matrix:** Solid **Tag ID:** 5013-12-__

Project ID: CHGERCRA **Project Manager:** Cynthia Hutchison
Project Desc: GE - RCRA site sampling
City: West Burlington **State:** Iowa
Program: RCRA Corrective Action

4-6

Location Desc: Loc 005, ~~4-5~~ feet bgs
MPW 12/8/10

Storet ID: _____ **External Sample Number:** GE-02-SL-005

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 12/8/10 09:41

Longitude: ___ ___ ___ **End:** 12/8/10 09:51

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vials (soil VOA 5035)	4 Deg C, H2O + sodium bisulfate (in 2 vials)	14 Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: ~~JD/BAH~~ ~~MR~~ RA/Terranext
MPW 12/8/10

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 11 **QC Code:** __ **Matrix:** Solid **Tag ID:** 5013-11-__

Project ID: CHGERCRA **Project Manager:** Cynthia Hutchison
Project Desc: GE - RCRA site sampling
City: West Burlington **State:** Iowa
Program: RCRA Corrective Action

1-3

Location Desc: Loc 005, ~~1-2~~ feet bgs
MPW 12/8/10

Storet ID: _____ **External Sample Number:** GE-01-SL-005

Expected Conc: (or Circle One: Low Medium High)

	Date	Time(24 hr)
Latitude: ___ ___ ___ **Sample Collection: Start:**	12/8/10	09:26
Longitude: ___ ___ ___ **End:**	12/8/10	09:38

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vials (soil VOA 5035)	4 Deg C, H2O + sodium bisulfate (in 2 vials)	14 Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: ~~JD/BAH~~ RA / Terranext

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** ~~10~~ 9 TOD 12/2/10 **QC Code:** FD **Matrix:** Solid **Tag ID:** 5013-~~10~~ 9FD TOD 12/2/10

Project ID: CHGERCRA **Project Manager:** Cynthia Hutchison
Project Desc: GE - RCRA site sampling
City: West Burlington **State:** Iowa
Program: RCRA Corrective Action

9-12

Location Desc: Loc 003, ~~9-10~~ feet bgs, duplicate MPW 12/9/10

Storet ID: _____ **External Sample Number:** GE-04-SL-003

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 12/8/10 __:__
Longitude: ___ ___ ___ **End:** 12/8/10 __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
4 - 40mL VOA vials (soil VOA 5035)	4 Deg C, H2O + sodium bisulfate (in 2 vials)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28	Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: ~~JD/BAH~~ MPW / Terranext

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 9 **QC Code:** __ **Matrix:** Solid **Tag ID:** 5013-9-__

Project ID: CHGERCRA **Project Manager:** Cynthia Hutchison
Project Desc: GE - RCRA site sampling
City: West Burlington **State:** Iowa
Program: RCRA Corrective Action

9-12

Location Desc: Loc 003, ~~9-10~~ feet bgs
MPW 12/8/10

Storet ID: _____ **External Sample Number:** GE-03-SL-003

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 12/8/10 13:04
Longitude: ___ ___ ___ **End:** 12/8/10 13:19

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vials (soil VOA 5035)	4 Deg C, H2O + sodium bisulfate (in 2 vials)	14 Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total In Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: ~~JD/BAH~~ MPW / Tetra Tech

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 8 **QC Code:** __ **Matrix:** Solid **Tag ID:** 5013-8-__

Project ID: CHGERCRA **Project Manager:** Cynthia Hutchison
Project Desc: GE - RCRA site sampling
City: West Burlington **State:** Iowa
Program: RCRA Corrective Action

Location Desc: Loc 003 ~~6~~ 6-8 feet bgs MPW 12/8/10

Storet ID: _____ **External Sample Number:** GE-02-SL-003

Expected Conc: (or Circle One: Low Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	12/8/10	12:54
Longitude: ___ ___ ___	**End:**	12/8/10	13:02

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vials (soil VOA 5035)	4 Deg C, H2O + sodium bisulfate (in 2 vials)	14 Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: ~~JD/BAH~~ RA/Terranext

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 7 **QC Code:** __ **Matrix:** Solid **Tag ID:** 5013-7-__

Project ID: CHGERCRA **Project Manager:** Cynthia Hutchison
Project Desc: GE - RCRA site sampling
City: West Burlington **State:** Iowa
Program: RCRA Corrective Action

2-4

Location Desc: Loc 003, ~~3-4~~ feet bgs
MPW 12/2/10

Storet ID: _____ **External Sample Number:** GE-01-SL-003

Expected Conc: (or Circle One: Low Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	12/8/10	12:46
Longitude: ___ ___ ___	**End:**	12/8/10	12:49

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
4 - 40mL VOA vials (soil VOA 5035)	4 Deg C, H2O + sodium bisulfate (in 2 vials)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28	Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: ~~JD/BAH~~ RA/Terranext

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 6 **QC Code:** __ **Matrix:** Solid **Tag ID:** 5013-6-__

Project ID: CHGERCRA **Project Manager:** Cynthia Hutchison
Project Desc: GE - RCRA site sampling
City: West Burlington **State:** Iowa
Program: RCRA Corrective Action

9-11

Location Desc: Loc 002 ~~9-10~~ feet bgs
MPW 12/8/10

Storet ID: _____ **External Sample Number:** GE-03-SL-002

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 12/8/10 13:56

Longitude: ___ ___ ___ **End:** 12/8/10 14:04

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vials (soil VOA 5035)	4 Deg C, H2O + sodium bisulfate (in 2 vials)	14 Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: ~~JD/BAH~~ MPW/ Terracon

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 5 **QC Code:** __ **Matrix:** Solid **Tag ID:** 5013-5-__

Project ID: CHGERCRA
Project Desc: GE - RCRA site sampling
City: West Burlington
Program: RCRA Corrective Action

Project Manager: Cynthia Hutchison
State: Iowa

6-8

Location Desc: Loc 002, ~~6-7~~ feet bgs
MPW 12/8/10

Storet ID: _____ **External Sample Number:** GE-02-SL-002

Expected Conc: (or Circle One: Low Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	12/8/10	13:42
Longitude: ___ ___ ___	**End:**	12/8/10	13:50

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vials (soil VOA 5035)	4 Deg C, H2O + sodium bisulfate (in 2 vials)	14 Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: ~~JD/BAH~~ MPW/Terracon ext

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 4 **QC Code:** __ **Matrix:** Solid **Tag ID:** 5013-4-__

Project ID: CHGERCRA **Project Manager:** Cynthia Hutchison
Project Desc: GE - RCRA site sampling
City: West Burlington **State:** Iowa
Program: RCRA Corrective Action

Location Desc: Loc 002, ~~3-4~~ 2-4 feet bgs MPW 12/8/10

Storet ID: _____ **External Sample Number:** GE-01-SL-002

Expected Conc: (or Circle One: Low Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	12/8/10	13:30
Longitude: ___ ___ ___	**End:**	12/8/10	13:37

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vials (soil VOA 5035)	4 Deg C, H2O + sodium bisulfate (in 2 vials)	14 Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: JD/BAH Terranext

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 3 **QC Code:** __ **Matrix:** Solid **Tag ID:** 5013-3-__

Project ID: CHGERCRA **Project Manager:** Cynthia Hutchison
Project Desc: GE - RCRA site sampling
City: West Burlington **State:** Iowa
Program: RCRA Corrective Action

9-11

Location Desc: Loc 001, ~~9-10~~ feet bgs
MW 12/8/10

Storet ID: _____ **External Sample Number:** GE-03-SL-001

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 12/8/10 14:46
Longitude: ___ ___ ___ **End:** 12/8/10 14:54

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vials (soil VOA 5035)	4 Deg C, H2O + sodium bisulfate (in 2 vials)	14 Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: ~~JD/BAH~~ RA / Tetra Tech

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 2 **QC Code:** __ **Matrix:** Solid **Tag ID:** 5013-2-__

Project ID: CHGERCRA **Project Manager:** Cynthia Hutchison
Project Desc: GE - RCRA site sampling
City: West Burlington **State:** Iowa
Program: RCRA Corrective Action

6-8

Location Desc: Loc 001, ~~6-7~~ feet bgs
MPW 12/8/10

Storet ID: _____ **External Sample Number:** GE-02-SL-001

Expected Conc: (or Circle One: Low Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	12/8/10	14:26
Longitude: ___ ___ ___	**End:**	12/8/10	14:40

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vials (soil VOA 5035)	4 Deg C, H2O + sodium bisulfate (in 2 vials)	14 Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180 Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28 Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A) + MS/MSD

Sample Collected By: ~~JD/BAH~~ RA / Terracon

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 5013 **Sample Number:** 1 **QC Code:** __ **Matrix:** Solid **Tag ID:** 5013-1-__

Project ID: CHGERCRA **Project Manager:** Cynthia Hutchison
Project Desc: GE - RCRA site sampling
City: West Burlington **State:** Iowa
Program: RCRA Corrective Action

2-4

Location Desc: Loc 001, ~~3-4~~ feet bgs
MPW 12/8/10

Storet ID: _____ **External Sample Number:** GE-01-SL-001

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 12/8/10 14:13
Longitude: ___ ___ ___ **End:** 12/8/10 14:21

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
4 - 40mL VOA vials (soil VOA 5035)	4 Deg C, H2O + sodium bisulfate (in 2 vials)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES
1 - 8 oz glass	4 Deg C	28	Days	1 Cyanide, Total in Soil
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: ~~JD/BAH~~ MPW/Terracon

APPENDIX F

PHOTOGRAPHIC LOG

Photo 1; December 8, 2010, 1011; Photographer: John Dixon; Facing SE.
View of Geoprobe setting up at Location 006, south of the Hazardous Materials Storage Building. Location 005 (flagged right) has been sampled.

Photo 2; December 8, 2010, 1012; Photographer: John Dixon; Facing N.
View of the Hazardous Materials Storage Building. Geoprobing at Location 006. Location 005 (flagged left) has been sampled.

Photo 3; December 8, 2010, 1012; Photographer: John Dixon; Facing W.
View of VOC soil sampling from the acetate liner at Location 006.

Photo 4; December 8, 2010, 1112; Photographer: John Dixon; Facing SE.
View of the groundwater sampling setup at Location 006.

Photo 5; December 8, 2010, 1246; Photographer: John Dixon; Facing E. View of the VIPO building, manholes, hydrants, and sprinkler system components in the planned area of Locations 001 through 003. Locations 001 through 003 moved to avoid encountering underground utilities.

Photo 6; December 8, 2010, 1238; Photographer: John Dixon; Facing N. View of VIPO Building and new Locations 001 through 003 (west of VIPO).

Photo 7; December 8, 2010, 1247; Photographer: John Dixon; Facing SE.
View of Location 004 (groundwater sampling setup) from the perimeter roadway.

END OF PHOTOGRAPHIC DOCUMENTATION

APPENDIX G

ANALYTICAL SERVICE REQUEST FORMS

US EPA Region 7 Analytical Services Request (ASR)

11/17/2010 12:33

Project ID: CHGERCRA **ASR Number:** 5013 **Projected Delivery Date:** 12/09/2010

Project Desc: GE - RCRA site sampling

City: West Burlington **State:** Iowa **Program:** RCRA Corrective Action

GPRA PRC: 302D99C

Project Manager: Cynthia Hutchison

Organization: AWMD/RCAP **Phone Number:** 913-551-7478

Contact: John Dixon

Organization: Booz-Allen and Hamilton, Inc. **Contact Phone:** 816-448-3253

ASR Purpose:

Comments: Site Characterization
RCRA Site ID: IAD005272703.

Is this activity currently or potentially a criminal investigation? No

Has a QAPP for the requested services been approved? Yes

QAPP Log Number and/or QA Document Number:

For health, safety and environmental compliance are any samples expected to contain:

Dioxin > 1ppb: Unlikely

RCRA Listed Wastes: Unlikely

Toxic/Hazardous Chemicals >1000ppm: Unlikely

No. of Samples	Req No	Analysis Name	CNS List	Conc of Interest	Expected Conc	Lab
18	1	Cyanide, Total in Soil		3135.2J	Low	EPA
18	1	Percent Solid			Low	EPA
18	1	Total Metals Analysis of TCLP Metals in Soil by ICP-AES		3122.3C	Low	ESAT
18	1	VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap		3230.16D	Low	ESAT
7	1	Cyanide, Total in Water		3135.2J	Low	EPA
7	1	Metals in Water by ICP/MS		3123.1C	Low	EPA
7	1	VOCs in Water by GC/MS		3230.1F	Low	EPA

Special Analytical Requirements or Comments:

60-Day TAT from the receipt of the last sample (per MSG/CARB). Sampling will begin the week of 12/6 with all samples delivered in 1 batch on Thursday (12/9) via overnight priority delivery. No weekend deliveries. Field sampler must ensure that samples arrive on or before the 3rd day of sample collection. Field sampler must provide extra (triple) volume as required on the water and soil LDL VOA samples for CARB QC (MS/MSD) purposes. CARB will provide extra containers/labels for this purpose. No extra volume for QC (MS/MSD) is needed/required if remaining containers are completely full and must be shipped/delivered properly to avoid any and/or all breakage. Container combinations will be coordinated with the sampler when the fieldsheets and tags are retrieved from the STC.

Date Submitted: 07/23/2010 **By:** Nicole Roblez **ASR Status:** Accepted

Project Desc: GE - RCRA site sampling

Date Accepted: 11/17/2010 **By:** Nicole Roblez **RLAB Turn Around Time:** 60 **Days**

Date Transmitted: **By:** **ANOP Turn Around Time:** 46 **Days**

Sampling Supplies and QC/PE Samples

11/17/2010 12:34

ASR Number: 5013 **Project ID:** CHGERCRA

Project Desc: GE - RCRA site sampling

Project Manager: Cynthia Hutchison
Organization: AWMD/RCAP **Phone Number:** 913-551-7478

Contact: John Dixon
Organization: Booz-Allen and Hamilton, Inc. **Contact Phone:** 816-448-3253

Supply Pickup Date: 12/02/2010 RLAB Will supply Field sheets and Tags

Supply Comments:
Fieldsheets, tags, acids, DI water and QC sample will be ready in the back dock refrig. at the STC for a pickup on or before Thursday (12/2) am. Field sampler will need to contact Joe Ricard (3-Days prior to gear pickup date) at Cell #913-339-8104 or 816-268-0225 to coordinate the remaining sampling supplies pickup at 8600 NE Underground Dr., Pillar 253, K.C., MO. 64161.

Field sampler will need to provide their own sodium bisulfate preserved, tared and pre-weighed vials (enough for 2 per location with 1 receiving triple amount for QC=MS/MSD purposes) and they must also provide the sample collection equipment (i.e. encore or syringe collection method). KCMO will still provide the remaining empty vials (2 per location w/1 receiving triple amount for QC=MS/MSD purposes), charcoal thimbles, cubis. & lids.

Qty	Sample Containers
16	1-Liter Cubitainer w/lid
24	8-oz. Wide Mouth Glass Jar (250 mL)
30	40-mL VOA Vial (Routine 2 in cubi)

Qty	Equipment
2	Ice Chest (w/ plastic bag)

Qty	Preservatives
1	HCl (1:1) Dropper Bottle
1	HNO3 (1:1) 5mL Squeeze Bottle
1	NaOH (Pellets)

Qty	Misc. Supplies
2	Chain-of-Custody Forms (each)
2	Custody-Seal Tape (by piece)
1	Fiber Tape (by roll)
2	Clear Wide Tape (by roll)
30	Charcoal Thimbles

Qty	QC Samples
1	Water Trip Blank, Routine VOA (2 vials)
1	DI Water, 1-Gallon Cubi

Performance Evaluation Samples

ASR Number: 5013 **Project ID:** CHGERCRA

Project Desc: GE - RCRA site sampling

Project Manager: Cynthia Hutchison
Organization: AWMD/RCAP **Phone Number:** 913-551-7478

Contact: John Dixon
Organization: Booz-Allen and Hamilton, Inc. **Contact Phone:** 816-448-3253

Supply Pickup Date: 12/02/2010 RLAB Will supply Field sheets and Tags

Supply Comments:

Qty	Matrix	Analytes	Concentration Range
(None)			

APPENDIX H

ANALYTICAL DATA